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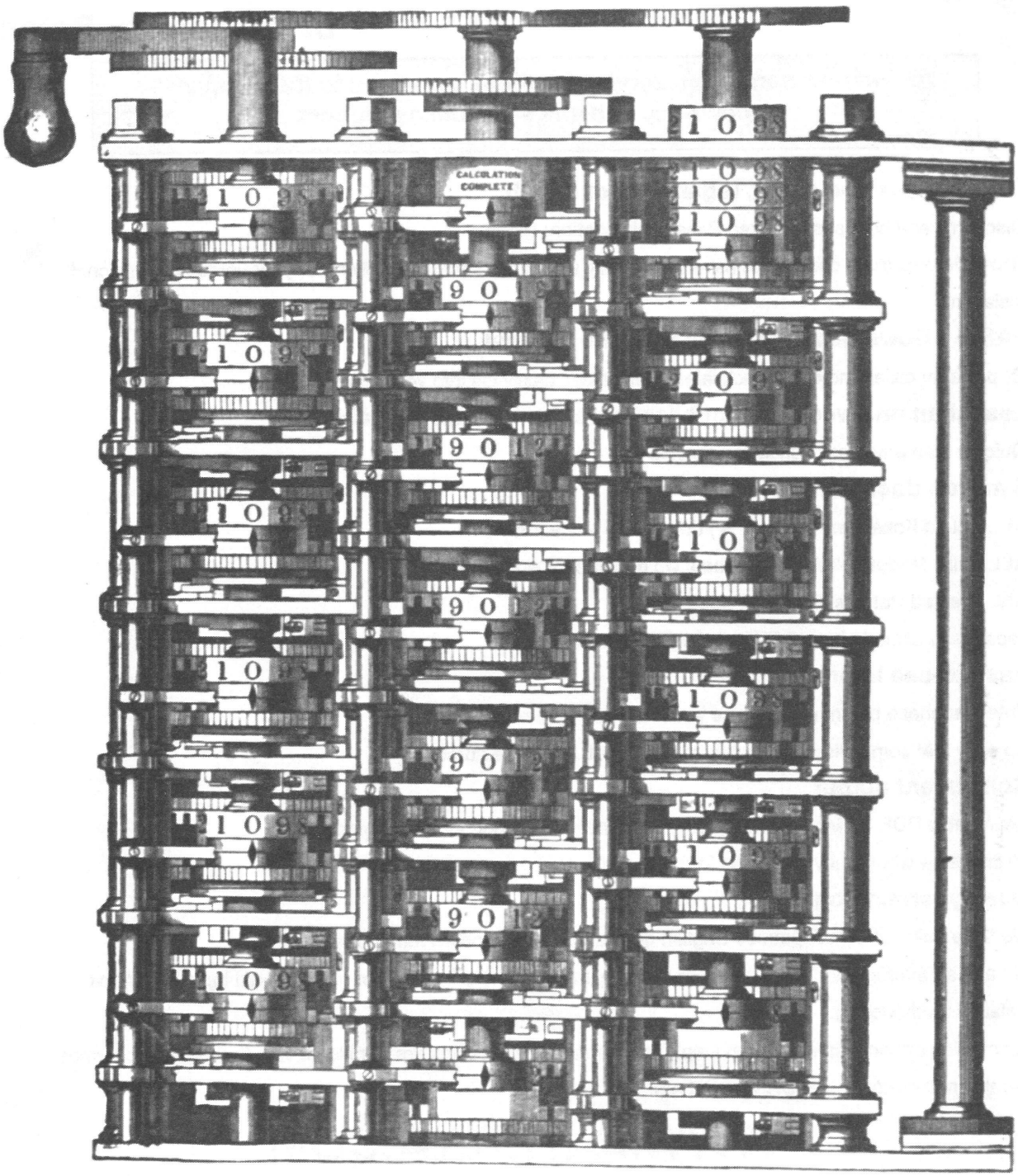

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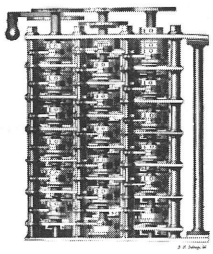
SLA
Connecting People and Information

SciTech News

Ellis Mount, Editor Emeritus



Charles Babbage is considered the father of the modern computer. His Analytical Engine, designed around 1836 but never built, contained such elements as a central processing unit, a memory stack, and an external program. His first computing device, the Difference Engine No. 1, was less sophisticated, but a portion of it was actually constructed in 1833, and in 1991 a complete working replica was installed in the Science Museum in London. The cover illustration shows the 1833 working model of Difference Engine No. 1, as it appeared in a pamphlet issued just after Babbage's death by his son, Benjamin Herschel Babbage, and titled *Babbage's Calculating Machine; or Difference Engine* (London, 1872; courtesy of the Linda Hall Library of Science, Engineering & Technology).

Feature Articles

News from the Sponsoring Divisions

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Index of Advertisers

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From the Editor

Bonnie Osif

You don't need to know me very well to know I am a *Lord of the Rings* fanatic and have been for almost forty years. I've read the book almost every year and have taken vacation the first day of the films and the DVD release for three years. Looking back on my five years as editor, while I didn't need to drop an evil ring into a volcano, I sometimes felt as if I was climbing Mount Doom with a burden of missing columns, late articles, few advertisers, incorrect mailing lists, etc. I hope I fulfilled my mission with the hopefulness of Sam, but some days ...

Editing *STN* has been an adventure. There is a cycle to each issue with only a short hiatus between preparing issues. Although I've done my best to plan trips around this cycle, it wasn't always possible. For that reason, FedEx and I have become very good friends in several states and countries. The November 2000 issue chased me around Northern Ireland and the Republic of Ireland, always a few days behind. Just when I thought I would have to get a copy to approve when I returned home, it showed up.

I have met some of the greatest people as editor. First, a special "thank you" to Ellis Mount and his helpful meeting with me about editing *STN.* His encouragement has helped me keep whatever sanity I have! Every issue he selects 100 reviews for the very valuable book review column. Ellis has supported and encouraged me for years (I had him as a professor at Drexel) and has made a major difference in my career.

Second, I have a special place for all of my columnists. Earl Mounts is dependable and insightful and has a great wit. He is also a person who encourages and supports others—a trait I admire. I've known Dave Hook as my intrepid Web columnist, Aero chair, and fellow hockey fan. Unfortunately, we find out this issue that he will not be putting on pointy ears and joining me at a *Star Trek* convention, but no one is perfect! Our mysterious Dr. Noit stepped in when I needed help and receives a heartfelt thanks. And to my former columnists, Christine Holiday and Linda Musser, thanks for your efforts.

I've worked with wonderful chairs and don't want to offend anyone by leaving out their name, so I'll simply say I have learned from you and appreciated your hard work. Some of you have made my day with your humor and support. Anyone who believes that librarians are a humorless, dour profession has not met my favorite chairs.

I would like to thank long term Business Manager Ann Koopman, Valerie Perry, our new Business Manager;former Ad Managers - Bette Stewart, Suzanne Ogden and Barbara Sanduleal-Parker for a job well done!

I'd like to mention one reader in particular. At times, after working hard to get the issue done and write an editorial that was (hopefully) insightful and informative, I wouldn't hear any comments. Several colleagues have admitted they never read the editorial. I even toyed with some cryptic comments or hiding a free offer for something, just to see if anyone would catch it. And then I'd hear from Nancy, a retired member who took the time to send me cards several times a year. Nancy, you know who you are and you have no idea how much those cards meant. Thank you.

So, with all the free time on my hands I intend to catch up on the four wedding presents and three graduation presents I owe, start some new research and Web projects that have been neglected, clean my office, maybe catch up on my *Star Trek,* catch the *Lord of the Rings* extended versions again, and see what else is out there. As Bilbo says in my favorite movie, "I think I'm quite ready for another adventure." Thanks to you all and best wishes to Susan as she begins her adventure.

Meet Your New Editor - Susan Fingerman

What encouraged you to be a librarian?
Well, I have to confess that when I was considering career options it was the time of "female" profession (i.e. limited) choices. So teaching, nursing, librarianship, social worker, were the main options on the list. I tried and didn't like teaching, and librarianship was my next best choice. Luckily it turned out to be one I love.

Favorite part of the job
Used to be the detective work of research, but now it's also making things run smoothly, providing customer satisfaction, and marketing our wares to our customers.

Least favorite
Maneuvering through the access point minefield of information sources, i.e. the disaggregation of sources needed for research.

To new librarians, I would say that if you became a librarian because you love books and want to only do research, you may be in the wrong profession.

Hopefully it's most meaningful! Keep up, the times they are a-changing!

What projects, etc., are you most proud of?
Connecting the end-users with their information goals.
Editing The CyberSkeptic's Guide to Internet Research (1999-2000) www.infotoday.com
Editing Business Information Alert (2001-2003) www.alertpub.com
Speaking to the Petroleum Division breakfast meeting at an SLA annual conference.
Product reviews in Online Magazine
Programs and committees I have chaired in both the Boston and Maryland SLA Chapters
Presidency of Maryland Chapter (3 years)
Marketing activities here at the Lab (Open House, Information Power Tour, articles in internal newsletters, etc.)
Resource database (http://www.enterprisefoundation.org/resources/ERD/default.asp) and trainings given at Enterprise Foundation annual conference
My daughters

Role of the web in your job
The Web has come to define librarianship. Our products and work are measured on how well we compare to the information and speed of access on the Web. It has also enabled us to serve our customers better and seduced us from the utilization of better sources. It is a blessing and a curse.

What SLA means to you
As you see from my earlier job history, SLA has been my lifeline to the successful fulfillment of my job functions and my growth as a professional. The networking and mentoring I've received from other librarians has been critical.

Personal info
Married to Craig, electrical engineer and project manager, a mentor in the sci-tech area, 36 years (yes, a child bride :-))
Two daughters, Jennifer, newly married, in Fairfax, VA, and Elaine, works at the Space Needle in Seattle
Used to – play piano, do needlework, do jigsaw puzzles - now mostly read, hope to get back to the others sometime
Active in League of Women Voters
Hooked on the Outlander series by Diana Gabaldon, also like science fiction
Classical music lover but like all kinds of music well-played

Wanted - *Sci-Tech News* – Two Positions

Advertising Manager - The Advertising Manager solicits advertisements and maintains regular contact with participating businesses. Coordinates and manages all ads for each issue, working closely with S-TN Editor, Business Manager, and Editorial and Advisory Boards.

Subscription Manager - The Subscription Manager maintains records of subscribers, obtains and verifies mailing labels for subscribers from Association HQ and forwards to printer. Works closely with S-TN Editor.

Please contact Susan Fingerman if interested, at susan.fingerman@jhuapl.edu or 443-778-4301.

Susan Fingerman - The New *Sci-Tech News* Editor

Education
B.A. Brooklyn College, City University of New York, Education major
MLS, Simmons College, Boston, MA

Job History
May 2003 – Present: JHU/APL, Manager, Science & Technology Information Services, R.E. Gibson Library and Information Center, Johns Hopkins University Applied Physics Laboratory, Laurel, MD
Back to my sci-tech roots. Working with amazingly intelligent scientists and engineers on complex issues of the day, and managing a library staff. Access to the myriad resources of an academic environment.

1983-Present – SMF Information Services, LLC
Own and operate an information consulting business. Over the years I've done research on a better mousetrap for an inventor (no joke, I even have a sample trap,) on community opinion for a pr firm, a lot of expert witness support, and other activities such as information audits, creating libraries etc. Over the years I have provided services to many Fortune 50 companies as well as small non-profits. Only activity continuing is providing on-site personnel for company libraries in Massachusetts.

1994-April 2003 - The Enterprise Foundation, Columbia, MD - Librarian
My one foray out of the world of sci-tech, I created this national non-profit's physical Library and also their resources database on the then newly-developing Web. Since Enterprise was created by Jim Rouse and his wife Patty, I got to meet and work with this visionary. This job also provided almost too much insight into the plight of the poor and homeless, who remain mainly invisible to most of us. Enterprise's main mission is to create housing for inner city poor, and it also has a job, safety and child care component.

1989-1994 - Digital Equipment Corporation (now Hewlett Packard), Maynard, Massachusetts - Contract Librarian
Digital, which at the time had a dozen libraries and

almost a hundred librarians, felt like the Library of Congress to this one-person librarian. They had a better library science collection than Simmons, and SO many resources. I loved being able to concentrate on reference and collection development, and not have to worry about P&P or cataloging. And to have on-site peers with which to discuss ideas. Because DEC was a multinational firm with hundreds of thousands of employees, research topics ranged from technology to education, to HR issues. I worked in several sites, starting with their HQ in a coverted mill in Maynard. Little did I know they were on the road to extinction as an entity!

1981-1989 - Teledyne Engineering Services, Waltham, Massachusetts - Library Manager
TES was a materials and civil engineering consulting firm working mainly on nuclear power plants (see a pattern here?) I was their first professional librarian, although they had had a library since the company was established in the 60s. I took the place of a woman who sold fantastic Syrian bread for her brother's business, so they were a bit disappointed when I just organized the collection. We moved to a new facility shortly after I was hired so I got to buy some lovely new shelving and unload each and every box of materials – which I had not had a chance to label before they stealthily packed me up one weekend! Once again, my SLA mentors came to my assistance with sourcing and procedural advice.

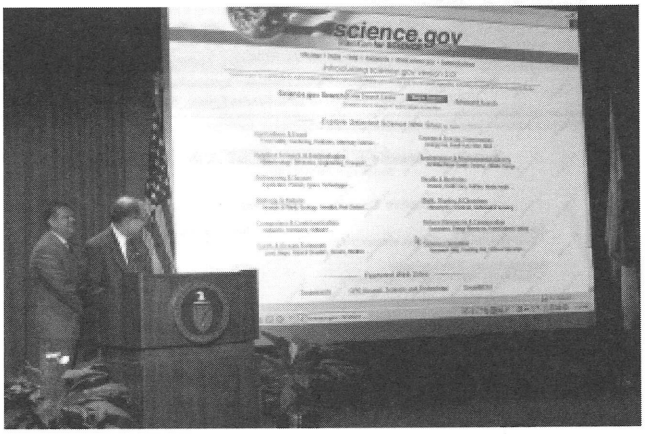
1979-1981 - Dames & Moore, Burlington, Massachusetts - Librarian
This was my first library job, taken while I was at Simmons. It was listed as "pre-professional." It turned out to be setting up and running a one-person library for Dames & Moore. This is mainly an architectural/engineering firm. The Boston area office had 2 groups, one doing nuclear waste modeling for repository purposes for ONWI, and one consulting on international infrastructure in third world countries. So the subject matter, materials, and sources were quite varied. I leaned heavily on the mentoring of SLA and other Dames & Moore library colleagues in other offices. TMI happened about a month after I took the job, so I thought the door would be shuttered when I showed up for work. Didn't realize how much waste had already been generated that needed storage!

www.science.gov – Capitalizing on Collaboration, Commitment and Cutting Edge Technology to Make Information Freely Available

Submitted on behalf of the Science.gov Alliance

It's been called "Home Base for U.S. Science" (Science magazine), "a great example of e-government in action" (Dr. John Marburger, director, Office of Science and Technology Policy); a window into the world of research results (Dr. Walter Warnick, director, Office of Scientific and Technical Information); and even a "pot luck party" success (Eleanor Frierson, deputy director, National Agricultural Library).

Accolades aside, the Science.gov Web portal (www.science.gov), designated the nation's FirstGov for Science, is first and foremost a collaborative, committed effort across science agencies to increase public access to science information.



Launched in December 2002, Science.gov provided for the first time wide, public, Web access and a unified search of the government's vast stores of scientific and technical information. The federal science portal connects the public to scientific research of multiple agencies with an easy-to-find single point of access. It allows citizens to search across 30 databases and more than 1,700 science Web sites via a single query. In May 2004, Science.gov 2.0 implemented real-time relevancy ranking of those results, and in so doing, introduced relevance ranking technology to government science retrieval.

At Science.gov, patrons can find a wealth of information on:

- Agriculture and food (e.g., food safety, gardening, pesticides, veterinary sciences)
- Applied science and technologies (e.g., biotechnology, electronics, engineering, transportation)
- Astronomy and space (e.g., exploration, planets, space technologies)
- Biology and nature (e.g., animals and plants, ecology, genetics, pest control)
- Earth and ocean sciences (e.g., land, maps, natural disasters, oceans, weather)
- Energy and energy conservation (e.g., energy use, fossil fuel, solar, wind)
- Environment and environmental quality (e.g., air/water/noise quality, cleanup, climate change)
- General science (multidisciplinary resources)
- Health and medicine (e.g., disease, health care, nutrition, mental health)
- Natural resources and conservation (e.g., ecosystems, energy resources, forest science, mining)
- Science education (e.g., teaching aids, science internships)

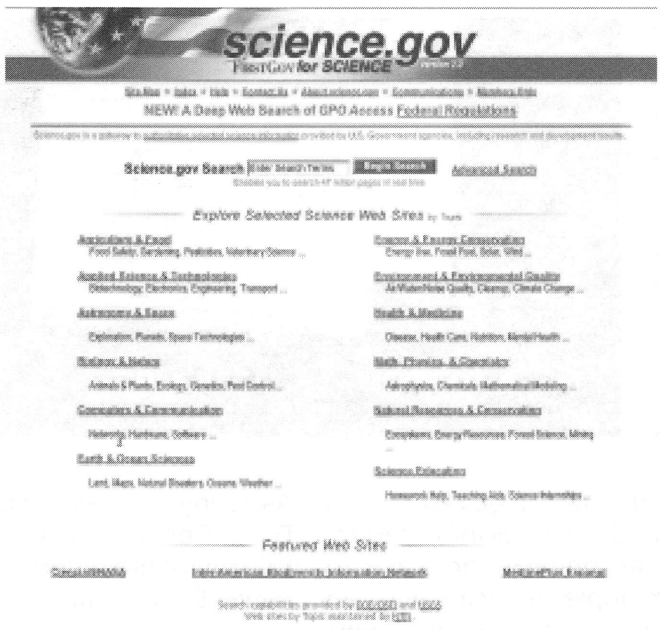
Patrons can search across databases such as AGRICOLA, DefenseLINK, U.S. Patent Server; NASA Astrophysics Data System; DOE Alternative Fuels Data Center; DOE Information Bridge; EPA Environmental Information Management System; PubMED; NSF Publications and more.

Search results on key word queries may be listed in clusters of relevancy and are retrieved in real time. Alternatively, patrons can choose to view search results listed by the source that sponsored the research, then hone in on the area of high interest. A "more" button allows the searcher to explore deeper into the target topic. Patrons can search databases, or Web sites, or both. In addition, particular subject areas of interest may be explored.

The Science.gov Web portal connects the public to scientific research across federal science agencies, which represent over 96 percent of the U.S. FY 2004 Federal R&D budget. Each agency selects its best science information for the science portal, with two major types of information included — selected authoritative science Web sites and

often hard-to-access scientific databases (considered the "deep Web"). The gateway includes sites that are rich in science content, consisting primarily of scientific or technical data, publications, databases, documentation, and other forms of information. The content might also include science resources such as scientific user facilities, experts in scientific disciplines, or contacts to consult for assistance.

Collaboration is one key aspect that makes Science.gov especially notable on the E-government landscape. This true collaborative effort is manifested through the Science.gov Alliance, a group of science mission departments, agencies and programs that have agreed to work together voluntarily to produce Science.gov. While DOE's Office of Scientific and Technical Information (OSTI) takes a leadership role and hosts the site, the Science.gov Alliance is made up of 17 science organizations across 12 agencies. The Science.gov Alliance includes the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services and Interior; the Environmental Protection Agency; the Government Printing Office; the National Aeronautics and Space Administration; and the National Science Foundation, with additional support provided by the National Archives and Records Administration.



The Alliance principals provide vision and strategic direction. The Alliance co-chairs, selected from among the Alliance members, represent the National Agricultural Library and the United States Geological Survey (USGS). The co-chairs are supported by Science.gov principals, who make policy, financial, and management decisions, and by a Technical Team, which provides technical direction and recommendations. Additional task groups have been created as needed to handle the development of the Science.gov taxonomy, to support content development and Website management and to conduct promotional and outreach activities.

The rapid evolution of Science.gov came about through Federal agencies recognizing a need and resolving to respond to that need through collaboration, culminating in the development and implementation of cutting edge technology. A deep Web search engine developed by a company called Deep Web Technologies powers Science.gov. The search engine plumbs science agencies' research databases and makes available to citizens, via "one-stop shopping", more than 47 million pages of government research and development results.

Science.gov Roots Are in National Library Concept

Science.gov has its roots in the concept of a digital National Library of Energy Science and Technology. DOE convened a 2000 workshop, chaired by Al Trivelpiece, Director of the Office of Science under President Reagan, to study the issue. The vision was for a new science information infrastructure that capitalized on new technology. The workshop laid out an infrastructure that would access Federal science information through a unified gateway.

Dr. Walter Warnick, Director of OSTI, said in opening remarks at the workshop, "The Infrastructure envisioned will continue to work with libraries and intermediaries, who traditionally have been our primary audience and who still have an important role, but one that is changing too. Libraries guide their patrons to information resources; today they have a growing role in pointing their patrons to sources on the Internet. ... For the first time ever, the vision of an Information Infrastructure for the Physical Sciences or a National Library is feasible."

Five objectives for a digital National Library of Energy Science and Technology were cited:

- Access to information through world-wide delivery

- "One-stop-shopping" for various sources of information through a core node or central point of access
- Full text and other media resources in addition to mature bibliographic databases
- Skilled information management staff
- Permanent public access combined with instituting information preservation

"Access to scientific information is integral to the success of the U.S. efforts in education and research," said Dr. Warnick in a presentation to the Energy Resource 2000 Conference. "A National Library is one way we can seize the opportunities being offered by the information society. It would benefit DOE, the scientific community, as well as the American and global public."

The goal of having a comprehensive collection of science information easily available to researchers, students and the general public had been expressed repeatedly for decades, dating back to Dr. Vannevar Bush's report in 1945 to President Roosevelt, entitled "Science - The Endless Frontier." Bush, Director of the Office of Scientific Research and Development, also expressed his views in a paper called "As We May Think" in the July 1945 Atlantic Monthly. He called for scientists to make more accessible the vast store of science knowledge and thus extend humankind's physical and mental powers.

Almost simultaneous to the growing call for a digital National Library for the Physical Sciences was the President's Management Agenda and E-government Initiative, which addressed the need to cut through bureaucratic structures and deliver information to the user. The E-government initiative was "citizen centered," as was the concept of a cross-agency science Web portal.

FirstGov, the official U.S. catalyst for the E-government Initiative, contacted OSTI in regard to building a science portal for citizens, "FirstGov for Science." Formal discussions of an interagency science portal ensued.

Pot Luck Party Begins

Building on momentum generated from the Trivelpiece Workshop, in April 2001 another workshop, "Strengthening the Public Information Infrastructure for Science," was held, co-sponsored by DOE and organized by CENDI, an interagency working group of senior scientific and technical information managers from federal science agencies; the Center for Information Policy; the University of Maryland; the National Institute of Standards and Technology and the National Science Foundation. Workshop participants enthusiastically endorsed the idea to further the sharing and communication of federal science information. Before the close of that workshop, the Science.gov Alliance was formed to move forward with the Science.gov Web portal initiative. The portal would combine and integrate where possible systems and resources that already existed within the agencies.

Because there was no specific funding for such an enterprise, it was decided that the initial approach would be informal and that each agency would bring what it could to the table, thus allowing the sum to be greater than the individual parts. Eventually cross-agency portal grants awarded through FirstGov were added to agency in-kind support. The alliance format prompted Eleanor Frierson, deputy director, National Agricultural Library and eventual co-chair of the Science.gov Alliance, to refer to the Alliance as an ongoing and successful "pot luck party" project.

Said Ms. Frierson, "(Science.gov) shows that Federal agencies can work together to pull off something that none of them could do individually."

Dr. John H. Marburger, Director, Office of Science and Technology Policy, Executive Office of the President, said of the Web portal, "Science.gov aims to bring the substantial resources of the Federal science and technology enterprise together, in one place. Working together, Federal agencies have assembled countless pages of government research, data, and reports. The site is a great example of E-government in action."

Science magazine's NetWatch quickly chimed in, calling the Web portal "Home base for U.S. Science." Mitch Leslie, editor of NetWatch, wrote in the December 20, 2002 edition of *Science*, "The brand new Science.gov makes it easier to round up scientific information that's strewn across the U.S. government's numerous Web sites."

Diving into the Deep Web

Dr. Warnick has called Science.gov "a window into the world of research results," which by definition means that the Web portal probes the deep Web. Many users would be surprised to learn that their Internet search efforts only skim the surface of the Web, and that the bulk of science information,

or research results, lies within the deep Web, where traditional search engines such as Google, Yahoo, Alta Vista, Northern Light and others cannot go. It is in the deep Web that Science.gov operates.

Estimates are that the deep Web is between 400 and 500 times larger than the surface Web. According to a University of California at Berkeley study, "How Much Information 2003," the surface Web is estimated at about 167 terabytes, while the deep Web is estimated at between 66,000 and 92,000 terabytes. The surface Web is comprised of publicly available, linked and static Web pages. These pages do not change or update based on the user's query. The deep Web is made up of dynamic Web pages, which are pulled to the surface in real time through direct query. Generally, traditional search engines must follow links to turn up results, leaving the deep Web largely unexposed, or invisible. So, without the right tool, databases residing throughout the country at multiple government facilities are left mostly inaccessible to the general public.

A company called Deep Web Technologies customized its search engine to explore the deep Web. This search engine, deployed at Science.gov, connected isolated islands of information from the disparate government databases and made them more visible and searchable via the single Web portal. Unlike a surface Web search engine, Science.gov does not build and store an index of static Web pages. Instead, the Science.gov search engine replicates the query and broadcasts it to multiple deep Web databases simultaneously. Within seconds, search results from the distributed databases are delivered back to the user through the Science.gov interface. The Science.gov Web site and search engine reside at DOE's OSTI.

Science.gov 1.0 was a major advance, and the results returned to desktops were numerous. Science.gov 2.0 introduced real-time relevancy ranking to government science retrieval, called QuickRank. This technology helps citizens sort through the government's reservoirs of research and return results most likely to meet individual needs. An advanced search capability and other enhancements were added.

Energy Secretary Spencer Abraham, who presided over its launch on May 11, 2004, at DOE headquarters in Washington, DC, praised Science.gov 2.0. "This new version of Science.gov provides rapid – *and now relevant* – one-stop, online access to Federal science information," said Secretary Abraham. "It's a gateway into our nation's exceptional science, and an outstanding achievement, providing a significant resource for our researchers, for our businesses, for academia, and for the American public."

In 2005, other enhancements, such as an Alert service and fielded searching, will be available. Science.gov versions 3.0 and 4.0 are aimed at precision searching.

Science.gov 3.0, funded by eight Alliance agencies, will take advantage of the full metadata available from each database when ranking the results. The Alerts and fielded searching will likely be introduced first. Advanced Boolean and MetaRank will be the basis for a 3.0 launch.

Science.gov 4.0, planned for 2006, will introduce a new relevance-ranking algorithm called DeepRank, which will analyze the full text of documents. Because relevance ranking of full text involves large amounts of data, Science.gov 4.0 will use a special architecture called Grid technology. The R&D to enable this project has been funded by the DOE Small Business Innovation Research Program.

Science.gov Sends Value to the American Public

Science.gov today continues to evolve as a prime example of the ability and willingness of Federal agencies to capitalize on new technology to make science information available and more easily accessed. Literally billions of dollars of taxpayer-funded research and development is available at Science.gov, free of charge. By increasing access to scientific knowledge, Science.gov contributes to the advancement of science while increasing economic benefit and enhancing quality of life for U.S. citizens. Science.gov provides a value-added resource for promoting and making available results of all the participating agencies' R&D for re-use, to advance government-sponsored R&D, commercial development, and educational purposes. In addition, Science.gov delivers value to the user beyond that provided by traditional, surface Web search engines:

- Deep Web Searching – or the ability to perform searches across databases of the science agencies. These databases are not in html but contain the most technical and valuable results of national R&D investment, including the worldwide literature and

technical report databases from multiple science missions. Often, such results are not searchable via popular search engines.

- A relevance ranking of deep Web search results, allowing users to sort through the vast reservoirs of science information and quickly zero in on information they need. Most search engines do not probe the deep Web, much less rank deep Web results.
- Access to tens of millions of pages of scientific and technical information generated by government R&D programs from highly selected sites, reviewed for quality and relevance to scientific enquiry.
- The ability to search both the deep Web and highly selected Web sites for access to multiple forms of information.
- A technical browse capability based on subject categories, which complement the specific search capabilities.
- An advertising-free environment where the information is federally supported and where no diverting advertising distracts users from scientific enquiry.

Science.gov is one of today's, and tomorrow's, most promising tools in the science information dissemination arena. The need for a user-friendly cross-agency portal or gateway is organic to federal science, as scientific questions in many scientific disciplines cross agency boundaries. A user often does not care which agency funded the work, but rather wants to know a scientific fact or seeks an answer to a science-based question. Yet, science and the information it produces in the federal government have been historically mission-based, with information "silos" created to serve agency needs. Science.gov was founded on the premise that science is advanced only if research information is shared – and the greater number of people reached, the larger the potential for greater good. Science.gov cuts across agencies to boost access to scientific knowledge, and so contributes to the advancement of science while increasing economic benefit and enhancing quality of life for the American people.

The goal and motivation for Science.gov is to provide free and easy access to federally funded scientific research. Although the specific value or return on investment in allowing users improved access has always been hard to quantify, the value proposition for Science.gov is that it brings selected, quality, government science information to the user in a cross-disciplinary system, without regard to agency of origin. If government can make its scientific and technical information available to an increased number of citizens at a lower cost, there is potential for a higher return on the tax dollars that were provided to do the research in the first place.

In future developments, Science.gov will continue to add value to the Nation's science experience by improving technical sophistication and by allowing search results to be better targeted to specific user needs, as well as varied audiences and multiple levels of technical sophistication.

In short, Science.gov will continue to make information freely available and accessible for the advancement of science and humankind.

For questions about this article, contact:
Cathey Daniels
Information International Associates, Inc.
Media Coordinator/Writer
Office of Scientific and Technical Information
(865) 576-9539 danielsc@osti.gov

Chemistry Division

Dawn French, Chair

The Chemistry Division is concerned with chemistry and chemical technology, and the economics, educational advances, and information handling of developments in the field of chemistry and related subjects.

Here we are deep into autumn! In Maryland, we are enjoying apple cider, fall foliage and open house tours, concerts, and more. Enough about that; here's the excitement going on in the Chemistry Division.

We are making great progress with the Toronto conference planning. October 15 was the deadline for session topics and we are working hard recruiting speakers, moderators, etc. We are building upon the strengths of past conferences as well as adding new strengths and partnering with the other scientific divisions of SLA. Thank you to those volunteering to be speakers and moderators, and those lending feedback when suggestions are needed. A big "thank you" to conference planner Kathy Whitley for helping to plan while in the midst of Florida's hurricanes.

Thanks also to all of those volunteering their time and efforts to make the Chemistry Division a success, such as Mary Ann Mahoney, bulletin editor, for the new format of our e-newsletter and for recruiting authors with great articles for each issue. I encourage others to thank all the division volunteers as well. It's amazing when you stop to think that we rely on volunteers to help us keep up with our professional development. It's really exciting to see so many great people dedicated to our profession and helping others. I encourage people to get involved with the division if they have not already done so. The more volunteers we have, the more we can do. If you are interested in volunteering, please contact me.

The division is currently looking at ways to build on the success of our Web conference and to do more virtual conferences. Please send us your ideas.

Are the fall colors stirring creative ideas in your mind? Or maybe you need to benchmark with other library/information professionals. Here's an idea: get together with Chemistry Division members in your area. Meet at a local restaurant for dinner. It's a great way to network and talk shop with fellow chemistry librarians/information professionals. If there aren't many Chemistry Division members around your area, get together with other SLA members. Recently three of us division members ate together in the Washington, D.C., area and had a good time talking about our libraries/information centers.

Here's another idea: get together with other members and take advantage of the site price for the SLA Virtual Seminars. Share the cost and invite members from other organizations to partake. The Washington, D.C., Chapter finds an organization to hold the seminar and allows members to come for free, charging nonmembers only $10. Hey, can't beat that bargain!

Thank you to the Washington, D.C., Chapter for the above two ideas. What do you do on a local level that we can share with other members of the division to inspire them?

By the time you get this newsletter, I will have attended the open house at the new SLA headquarters in Alexandria, Virginia. I will also attend the Leadership Summit in January in Tampa, Florida. If you are planning to go to Tampa or have any ideas/thoughts you want represented at the Summit, please let me know.

This is the first in a series of articles about specific physical properties...

pH property Help: extinctions coefficients

Linda Shackle

What is an extinction coefficient?"In analytical chemistry, the extinction coefficient is a quantitative measure of ultra-violet spectroscopy.

When a substance is exposed to ultra-violet radiation, some of the radiation will be absorbed and some will be transmitted; these numerical values may change however, depending on the concentration of the substance and the length of the path the radiation follows. The extinction coefficient is a way to describe absorbance in relation to a "constant proportion" or "unit."

The extinction coefficient equals the absorbance of the substance divided by the concentration times the path length. This equation ($\varepsilon = A/cl$) is a rearrangement of the Beer's Law equation. The extinction coefficient is usually measured at the peak height (uv max or λ max) and helps identify an unknown.

Synonyms: Molar absorptivity, molar absorption coefficient
Units: Most likely $M^{-1}cm^{-1}$, but may vary depending on how concentration and length are measured.
Symbol: ε
Field of Search: Data collections for classes of compounds and ultra-violet (UV) spectroscopy

Extinction coefficients are also found in the optics literature and in these cases are relating to the passage of light waves (not just from the ultraviolet portion of the spectrum) through a material, such as a metal. In this case, the extinction coefficient is equal to the absorption coefficient times the length of the wave in the material divided by 4π [$k = \alpha(\lambda/4\pi)$]

Symbol: k "
Field of Search: Data collections for types of materials and optical properties.

Some specific resources for extinction coefficients*

Absorption Spectra in the UV and Visible Region
Extinction coefficient must be calculated from given data using Beer's Equation.

American Institute of Physics Handbook
Optics chapter has extinction coefficients for metals.

Combined Chemical Dictionary

CRC Handbook of Biochemistry and Molecular Biology"*Section 12 has extinction coefficients for solids and the elements.*

Data for Biochemical Research"*Chapters 1-3 have extinction coefficients for amino acids and other types of biochemical substances.*

Human Protein Data

Merck Index
Extinction coefficients are found in the "properties" paragraph, primarily just for pharmaceuticals.

Organic Electronic Spectral Data
Volumes are arranged by molecular formula.

Practical Handbook of Spectroscopy (CRC)
The chapter on uv spectroscopy is arranged by the extinction coefficient.

Specifications and Criteria for Biochemical Compounds

UV Atlas of Organic Compounds

*From the Index to Physical, Chemical and Other Property Data at http://www.asu.edu/lib/noble/chem/property.htm

2005 Marion E. Sparks Award for Professional Development

The Chemistry Division of the Special Libraries Association is sponsoring a student/new member scholarship essay competition in 2005. The award is named to honor Marion E. Sparks, a chemistry librarian at the University of Illinois from 1913 until her death in 1929. Ms. Sparks contributed a great deal to the field of chemical information, her achievements include teaching courses on chemical information, and authoring and publishing what is argued to be the first book to formally address chemical literature and library instruction.

This competition is intended to encourage student members or new members of the Chemistry Division to attend the annual meeting and participate in the activities of the Chemistry Division of the Special Libraries Association.

AWARD: The winner will receive $1,500 to attend the 2005 SLA Annual Conference, Toronto, ON, Canada, June 5-8. The winner will also receive a certificate of achievement and will be introduced at the Chemistry Division Business Meeting & Breakfast. This award is intended to reimburse the winner's expenses for attending the convention, including: registration, airfare, lodging, food, and/or the continuing education course (registration in the course "Chemistry resources for non-chemists" if offered in 2005 or any other continuing education course is recommended but not required).

ELIGIBILITY: All student members of the Chemistry Division and all individuals who became members of the Chemistry Division since January of 2004 are eligible to enter the contest.

TO ENTER: Compose an essay to address the candidate's objectives for professional development and the outcomes if a person were granted the award. Essay should not exceed 400 words or two typed doubled-spaced pages. Please include a resume and the names of two references.

Entries may be submitted by email or regular mail to:

Svetlana Korolev
UWM Libraries
University of Wisconsin, Milwaukee
Milwaukee, WI 53211
skorolev@uwm.edu

Deadline for submission: March 15, 2005
Essays will be judged by a panel of SLA Chemistry Division members.
The winner will be notified by April 10, 2005.

Chemistry Division Welcomes These New Members

New Sustaining Member
Scope eKnowledge Ctr Pvt Ltd
Chennai Tamilnadu, India

New Student Member
Emily Huston
School of Library and
Information Science
Lousiana State University
New Orleans, LA

Other New Members
Caroline L. Gilson
Prevo Science Library
DePauw Univ
Terre Haute, IN

Joe Hecht
Noveon, Inc.
Cleveland, OH

Judith Matthews
Biomedical and Physical
Sciences Library
Michigan State University
East Lansing, MI

Mindy Pennington
Bay City, MI

Engineering Division

Mary Steiner, Chair

The objectives of the Engineering Division are to provide an association for those having an interest in library and information science as they apply to engineering and the physical sciences and to promote the use of materials and knowledge for the benefit of libraries and other educational organizations

The last issue featured information about our division award winners in Nashville. Now it's time to start thinking about next year's Elsevier Engineering Information/SLA Engineering Librarian of the Year and INSPEC Travel Stipend Awards. Please see the solicitations and awards criteria in this issue of *Sci-Tech News*. Our Awards Committee of Janifer Holt, Mary Crompton, Karen Dennison, Bette Finn, Yolanda Maloney, and Kathy Nordhaus awaits your nominations!

I hope some of you have had a chance to take a look at our new and improved Web site at http://www.sla.org/division/deng/. Web editor Jeanne Trimble has been hard at work to make our site more informative and useful to division members. I'd like to call your attention to both the "Governing Document" and "Recommended Practices," which replace the former Division Bylaws and Procedures. I invite you to e-mail or call me with feedback on either document. And if you have any ideas about developing the Web site further, please contact Jeanne (jeannet@aiaa.org).

Our division is looking for a new archivist. We would like to find someone who will review our current archives, solicit and organize new archival material, and select interesting, historical material to post to our Web site. Ideally, we'd like to find someone willing to make a multiyear commitment. If you are interested, please let chair-elect Kathy Nordhaus (k-nordhaus@raytheon.com) or me know.

Kathy and I will attend the SLA Leadership Summit in January, so let us know if there is anything you wish us to convey or find out about while we are there with Association-level leadership and headquarters staff. Kathy will kick off program planning for the Baltimore 2006 SLA Annual Conference, so please share your ideas with her.

Some of you may know that this is Bonnie Osif's last issue as editor of *Sci-Tech News*. Bonnie has done an outstanding job and we thank her heartily for all her contributions! Taking over the helm in 2005 is Susan Fingerman of Johns Hopkins University—welcome, Susan! On that note, I would like to encourage you to submit articles to *Sci-Tech News*. Have you learned about or done something new lately? Think about what might be interesting to share with other members working in engineering and science information settings. Alternatively, you might consider writing an opinion piece to stimulate discussion of some topic dear to you. Please contact Susan with your ideas (susan.fingerman@jhuapl.edu).

As the end of the year draws near, I'd like to propose a toast to all new division members who have joined us in 2004, as well as our dedicated longtime members. I wish you all a happy and healthy holiday season and the very best in 2005.

Cheers!

Mary
maryds@seas.upenn.edu
Tel: 215-898-8170

Call for Applications!

SLA's Engineering Division Announces the 2005 Inspec Travel Stipend Award

To Attend the SLA Annual Conference in Toronto, Ontario, Canada, June 5-8, 2005

Inspec is sponsoring for library school students the award of a $1,200 travel stipend toward payment of expenses incurred while attending the SLA Annual Conference in Toronto, Ontario, Canada, June 5-8, 2005.

The Inspec Award will be given to the qualified student who submits an essay of three or less double spaced typed pages, that is judged by Inspec and the SLA Engineering Division Awards Committee to be the best essay submitted, describing:

How has your library education prepared you to be an effective library professional in a solo library?

Qualifications for Entering the Award Competition:

1. Be a student member of the Special Libraries Association.
2. Be attending his or her first SLA Annual Conference.

Special Instructions:

1. Give your full name, address, telephone number, e-mail address, and a statement, on one page, of your qualifications, as given above, for entering the award competition. Include the name of your library school.

2. Type your full name (without any additional personal information) at the top of each essay page. Double space the typing on all pages.

Deadline for Receipt of Submissions: March 1, 2005.
The recipient of the Inspec Travel Stipend Award will be notified by April 1, 2005.

Submit Entries to:

Bette Finn
SLA Engineering Division Awards Committee
Georgia Tech Library and Information Center
Georgia Institute of Technology
Atlanta, GA 30332-0900
USA
Voicemail: (404) 894-1790
Fax: (404) 894-8190
E-mail: bette.finn@library.gatech.edu

Take a Minute with a New Member

In this and future editions we are going to randomly choose an Engineering Division member to highlight. Please let me know if you would like to have yourself highlighted or have someone to suggest. Contact information: Cheryl A. Hansen, Membership Chair, Engineering Division, Engineering Systems Inc., cahansen@esi-il.com.

Katrina V. Reiling is a new member of the Engineering Division, having joined us this past summer. Katrina is with the Technical Information Center at FM Global located in Norwood, MA. She has been with FM Global just a year as I spoke with her in late September. Katrina went to Simmons and graduated in May of 2003. As part of the Technical Information Center staff she works with both the Research Group and the Technical Engineering Group at FM Global. She mainly does reference and material acquisition for the Research Group while she helps to manage the in-house engineering/technical literature that the Technical Engineering Group puts out.

FM Global is a leader in commercial property insurance and risk management. They help safeguard their clients' properties through cost-effective insurance coverage, risk transfer solutions and proven loss prevention engineering and research. There is an immense amount of work to be done to support the research & technical groups there but it is an interesting company to be with.

One of my questions to Katrina was what is your favorite thing to do? Her response was immediate, she loves tracking down bizarre hard to find citations. While in graduate school she was open to any type of library she really felt drawn towards the technical/scientific/medical fields. She enjoys working with the researchers and engineers at FM Global and locating what they need whether it is something common or uncommon.

Katrina hopes to attend the Toronto Conference next June and meet other division members. She is also a member of the Sci-Tech Division. So please say hi to her in Toronto next June and welcome her to our midst.

Cheryl A. Hansen
Past Chair & Membership Chair
Engineering Division

Engineering Division Welcomes These New Members

Cindy Alfieri
Agilent Technologies
Palo Alto, CA
Cindy-alfieri@agilent.com

Carol S. Brinkman
Louisville, KY

Kim G. Feltham
Klohn Crippen Consultants Ltd.
Vancouver, BC
kimfeltham@shaw.ca

Tina Franks
Burgess & Niple
Columbus, OH
tfranks@burnip.com

Margaret M. Hartley
US Natl Security Agency
Fort Meade, MD
hartleymm@yahoo.com

Lillian E. Hyatt
Fluor Corp
Greenville, SC
Lillian.hyatt@fluor.com

Maureen L. Kimball
Raytheon
Tewsbury, MA
mkimball@inmagic.com

Catherine R. Lavallee-Welch
Laura Kersey Library
Univ. of Louisville
clw@louisville.edu

Meris Mandernach
Loyola Univ. of Chicago
Science Library
Chicago, IL
mmander@luc.edu

Katrina V. Reiling
FM Global
Norwood, MA
Katrina.reiling@fmglobal.com

Kathleen A. Shaw
Seattle, WA

Linda Stinson
Northrop Grumman
Baltimore, MD
cvcstinson@yahoo.com

Amy E. Tursky
Federal Aviation Admin
Washington, DC
amy.tursky@tasc.dot.gov

Call for Nominations!

SLA's Engineering Division Announces the 2004-2005 Elsevier Engineering Information/SLA Engineering Librarian Award

Should you be an award winner? Do you know someone who should be an award winner?

The SLA Engineering Division Awards Committee is now accepting nominations for the 2004-2005 Elsevier Engineering Information/SLA Engineering Librarian Award. This award is offered annually to honor a member of the Engineering Division. It is sponsored by Elsevier Engineering Information Inc. and highlights the accomplishments and contributions of members of the Engineering Division to the profession. Recognition comes in the form of a $1,000 stipend, a plaque and a presentation at the annual business meeting held during the 2005 SLA annual conference. Based on criteria developed jointly with Elsevier Engineering Information, the year 2005 winner will be selected by members of the Engineering Division's Awards Committee. Prospective candidates are encouraged to nominate themselves, or an associate may nominate them.

Criteria for entry are: Membership in good standing for one year in the SLA Engineering Division as of January 1, 2005. Distinguished achievement in the engineering library profession, through an exceptional contribution on the job, within the SLA Engineering Division, or within the industry at large. This accomplishment should have taken place within the calendar year immediately preceding the nomination; however, in selected cases, based solely on the Award Committee's judgment, recognition may be given for an ongoing, long-term contribution.

The Elsevier Engineering Information/SLA Engineering Librarian Award Winner for 2003-2004 is Kathy Nordhaus, Senior Librarian, North Building Library, Raytheon Company, Dallas, Texas. She is a leader in a number of company-wide initiatives including developing a corporate taxonomy, mentoring, benchmarking, knowledge management, Six Sigma training, marketing intelligence, etc. Kathy continues her efforts by bringing "Growth through Customer Focus" and she is an active team member who creates learning programs to ensure the continued success of the library.

Kathy has been an active and vocal member of the Special Libraries Association since 1980 and holds leadership roles in the Engineering Division and the SciTech Division. She was elected Chair-Elect of the Engineering Division in 2004. Kathy has taken upon herself to mentor recent graduates, in addition to her division and chapter-level responsibilities, and truly takes an active role in positioning SLA for the future.

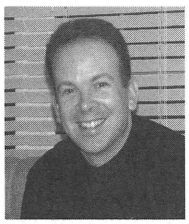
For the 2004-2005 Elsevier Engineering Information/SLA Engineering Librarian Award, **all applications must include:** full name, address, telephone number and e-mail address for the nominator and nominee; a concise letter, maximum of two pages, highlighting the unique accomplishments and contributions of the nominee.

Applications for the award must be received by March 1, 2005. Send to:

Janifer T. Holt
Chair, SLA Engineering Division Awards Committee
Feldberg Library
Dartmouth College
Hanover, NH 03755
USA
Telephone: 603-646-3066
Fax: 603-646-2384
E-mail: janifer.t.holt@dartmouth.edu

Aerospace Section

David Hook, Chair



The Aerospace Section of the Engineering Division encourages communication and cooperation among information professionals concerned with aerospace, aeronautical and related technologies. In addition, it fosters dialog with entities such as NASA, the AIAA and other important sources of technical data and bibliographical services.

My wife is a trekkie. Or trekker. I'm not sure which. She keeps correcting me on the correct terminology, but I can never remember which one is which. She's tried to explain the difference to me over and over again. Evidently one is a preferred term for describing fans of Star Trek and the other is a derogatory term for the same. Perhaps some of you have friends and/or loved ones who frequently correct you on this sort of thing as well. I really can't tell the difference between the two.

Don't get me wrong - I have nothing against *Star Trek*. I do like Science Fiction, and have nothing against the show or those who like it. I'm amazed that I somehow managed to make it through an entire undergraduate program in engineering without ever getting into *Star Trek*. Lord knows I've even TRIED to like the show. I've subjected myself to watching several episodes of it in an attempt to try to understand the show's appeal.

The thing that gets me the most about the show is that it always seems to end with problems being solved by some new technological solution that someone just happens to suggest…."hey I've got an idea - if we inverse the polarity on our tachyon flux capacitors and combine it with a sonic delta-dilithium beam we should be able to defeat that alien monster that's been killing all our red shirt guys" … Sort of like the writers couldn't think of a way to end the show so they just strung a few techy-sounding words together and there you go – it's a wrap. But I digress.

The reason that I bring up this whole trekkie / trekker thing is not at all as a plug for an upcoming event for the conference next year (but more on that later, for those whose interest I've just piqued.). No, the reason that I mention this is that I wonder if the trekkers/trekkies are even aware that while they are deciding what they want to be called, that the rest of the world really doesn't see a difference between the terms 'trekker' and 'trekkie'. We just simply don't care. So how did the collective of *Star Trek* fans around the world decide on the correct terminology for what they want to be called? Do they spend countless hours in *Star Trek* conventions debating name changes, how they should brand themselves, etc? Did they have a referendum?

I wonder if we doing the same thing as an association and as a profession. We seem to be debating and debating over how to brand ourselves and how the rest of the world perceives us when really the rest of the world might not even care.

On another note, planning for the 2005 SLA conference in Toronto is well underway. And for those of you trekkies/trekkers or fans of science fiction in general out there, one of the events we're looking into putting on is a walking tour of sci/fi book stores and libraries with the IT section. I've been also working with Mary Steiner from the Engineering Division and we have a lot planned for the conference. We'll give you more details soon.

Also, keep an eye out on the Aerospace discussion list – there should be announcements shortly about the George Mandel award.

Live long and prosper,

Dave

MINUTES
SLA/Aerospace Section
8 June 2004
Nashville TN

Present: Peggy Cass, Barbara Carroll, Chet Bunnell, Mary Crompton, Sara Davis, Eileen Dorschner (minutes), Dug Greavy, Gale Harris, Dave Hook, Cheryl Hanson, Jennifer Hattiere, Janna Jantz, Ginny Jarvis, Shannon Mack, Dottie Moon, Katie Nelson, Kathy Nordhaus, Rick Orlando, Edna Paulson, Marcia Rodney, Mary Shiau, Sherry Siler, Ellen Turner, Mary Whittaker

1. Call for minute taker: Eileen Dorschner volunteered.

2. Welcome: Chair Mary Crompton welcomed all attendees and thanked AIAA and Thompson Scientific, our generous sponsors. Each gave a brief update on new products and staff. We were reminded that they were at Booth # 845 and Booth 623, respectively, in the Exhibit Hall.

3. Introductions: Each attendee introduced him/herself and mentioned where they worked.

4. Mandel Award Winner:
Margaret Metcalf Carr received the George Mandel Award for this year. She accepted her check and plaque with thanks to all.

5. New Business:

A. Call for volunteers for the Mandel Award Committee: Marcia Rodney, as Chair Elect, will Chair the Mandel Nominating Committee for 2004/2005. Janna Jantz and Chet Bunnell volunteered to serve on the Committee with her.

B. Chair-Elect Nominating Committee: Mary Crompton as Past Chair will head the Nominating Committee for Chair Elect for 2005/2006. She has called for volunteers to assist her. Eileen Dorschner volunteered. Others should contact Mary if they can help.
mary.crompton@ngc.com

C. New NASA Databases: Edna Paulson of NASA's Center for Aerospace Information (CASI) spoke about the two new NASA databases. The NASA Technical Reports Server, http://ntrs.nasa.gov has publicly available NASA reports plus access to NACA and some other report series. Use advanced search to search for the other reports in addition to those published by NASA. Simple search searches only NASA reports. This database has some full text pdf files.
NASA has also released the NASA Aeronautics and Space Database. Available to NASA contractors and serving as the new version of RECON, this database contains NASA, NACA and some other government documents as well as the open journal and conference literature that was available in RECON. This database also contains some full text with the option to request scanning of reports not yet available as full text.

D. Introduction of Candidate for Chair-Elect proposed by Nominating Committee: Marcia Rodney, the candidate proposed by the Nominating Committee was introduced to the gathering and a call was made for nominations from the floor. There were no other nominations. Marcia was voted Chair-Elect by voice vote.

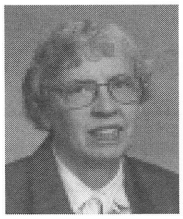
E. Brainstorming for 2006 in Baltimore: Marcia Rodney asked for suggestions for possible programs. She can be reached at mrodney@ball.com

6. New Chair: David Hook, Section Chair for 2004/2005, was introduced and gave a brief update on possible programs for Toronto in 2005. Included were several co-sponsored with the Engineering and SCI-TECH Divisions, such as an All Science reception and a Technology Petting Zoo (chance to try different technologies). David also asked for suggestions for possible vendors for Toronto. He will forward them to the Engineering Division's Vendor Relations Chair

7. EI Engineering Librarian of the year: The group congratulated Kathy Nordhaus on receiving this award. The actual award will be given at the Engineering Division's lunch and business meeting on Tuesday 9 June 2004.

Materials Research & Manufacturing

Martha Rose Rhine, Chair



Members of the Materials Research and Manufacturing Division share information concerning all phases of materials procurement production, applications and handling by means of educational activities, cooperative programs, publications and Division-sponsored events at annual conferences.

My mother who turned 92 this summer asked me to move in with her. She didn't want to spend another winter alone on the farm and didn't want to move to Springfield with my sister-in-law who offered to take her in. I couldn't do what I want to do and keep what I want to keep and let her keep what she wants to keep and move into two small rooms of her house.

We decided to put up a mobile home across the driveway on the farm. It is 1300 sq ft, and I have 1550 sq. ft. plus garage here. Some of what is in the garage here can go to the shed where the pigeons roost, but not all of it. I can move everything in my van (3-hour trip one way) but two items I plan to sell — my Cable piano (Mom has one like it) and the hide-a-bed sofa. I have changed my address in the SLA Online Membership Directory but don't have a new ISP yet.

I'm sorry I haven't gotten on with my project to talk to each of you by phone, but I have been busy getting registered with the school districts there for substitute teaching. (My masters degree is in education, not library science.) I don't want to work full time, but I can't afford to retire on my small pensions.

MRMD members – don't forget to submit articles about your libraries, your procedures, systems, or anything else you think another librarian might be interested in. *STN* is your bulletin – use it.

The following publications will be door prizes next year at the breakfast meeting -

Automotive Engineer, April 2004, Vol 29 No 4, Institution of Mechanical Engineers (4 copies).

International Journal of Engine Research, Vol 5 No 1, ISSN146-0874, SAE.

Journal of Strain Analysis for Engineering Design, Vol 39 No 3, May 2004, ISSN 0309-3247. Professional Engineering Publishing, Ltd.

Journal of the American Ceramic Society, Vol 87, No 5, May 2004, ISSN 0002-7820

International Journal of Applied Ceramic Technology, Vol 1 No 2,2004, ISSN 1546-542X. (Topical Focus: Nanotechnology) American Ceramic Society.

Polymer International, Volume 53, Issue 1, January 2004, ISSN 09598103, Wiley.

Professional Engineering. Vol 17 No 8, Wednesday 28 April 2004.

Proceedings of the Institution of Mechanical Engineers, Journal of Engineering for the Maritime Environment, Proceedings Part M, February 2004, Vol 218 No M1, ISSN 1475-0902. Published in association with RINA and IMarEST.

Proceedings of the Institution of Mechanical Engineers, Journal of Multi-body Dynamics, Proceedings Part K, 2003 Vol 217 No K3, ISSN 1464-4103.

Proceedings of the Institution of Mechanical Engineers, Journal of Engineering Tribolgy, Proceedings Part J, 2004 Vol 217 No J1 ISSN1350-6501.

Automotive Engineer, April 2004, Vol 29 No 4, Institution of Mechanical Engineers (4 copies).

Books:

Biopolymers, Polyamides and Complex Proteinaceous Materials I. Volumen Editors: S.R. Fahrenstock, A Steinbuchel, ISBN 3-527-3022-0. (Shrink wrapped yet – year not shown on the cover.)

Lencioni, Patrick, *Death by Meeting, a Leadership Fable* © 2004 Jossey-Bass, a wiley Imprint

Singer, Josef; Arbocz, Johann; Weller, Tanchum, *Buckling experiments, Experimental Methods in Buckling of thin-Walled Structures, Shells, Built-up structures, Composities and Additional Topics*, Vol 2, Wiley, © 2004 ISBN 0-471-97450-1.

Sonntag, Richard E; Borgnakke, Claus; Van Wylen, Gordon J, *Fundamentals of Thermodynamics* 6th ed., © 2003, Wiley

The Materials Research and Manufacturing Division Welcomes its New Members

Louis Naturman
Business Communications Co Inc
25 Van Zant St
Norwalk, CT 06855-1781

Sara R. Tompson
Univ of Southern California
USC Sci & Eng Library 304
920 West 37th Place
Los Angeles, CA 90089-0481

Science-Technology Division

Darra Combs, Chair

The objectives of the Science-Technology Division shall be to draw together those members of the Special Libraries Association having an interest in the role of library and information science as applied to the recording, retrieval and dissemination of knowledge and information in all areas of science and technology, and to promote and improve the communication, dissemination and use of such knowledge for the benefit of libraries and their users.

If you live in an area of the country that has real fall weather, I envy you. I was in Minneapolis, Minnesota, at the end of September, and woke up to cool temperatures in the mid-40s and leaves that were starting to turn colors. How refreshing compared to what I came home to in Georgia, where it remains muggy and warm through most of October. Not much color in the trees either—too many evergreen pines. But, I suppose the lack of real cold weather here makes living easy. If I run out of the house in the morning and forget my jacket, I won't be blue with cold by the time I walk from the parking lot to the library. Living in a northern climate would mean I had to be more careful, or at least plan ahead so I'd be ready for the conditions outside.

My library has been like that lately. We had a few good years as far as our budget was concerned—the kind where our boss would call my colleague and me at an SLA Annual Conference and say, "We've got some extra money to spend; go to the exhibits and see what you can find." Our money "climate" was pleasant and easy to live in. But now a colder wind is blowing, and our budget proposals keep coming back from the upper levels of management with demands for more and more justifications for every dollar. Consequently, we arm ourselves with usage statistics and analyses of research patterns, like so many scarves and mittens, and go back into the cold again.

Times such as these can make you feel like the only thing you have control of is your attitude. Over the years that I've been involved in SLA, I've noticed that so many of our members and leaders have a real can-do attitude and show great imagination and creativity when under pressure. They are also quick to share advice with other librarians who may be going through trying times. Division and chapter discussion lists and meetings are great places to find a word of encouragement when you need one. No matter what kind of dark tunnel you may be walking into, chances are another librarian has already been there and found the light on the other side. Look around for that person and ask for advice if you need it—or just a sympathetic ear. You'll get it from an SLA member.

One of the bright lights of the Sci-Tech Division is Bonnie Osif, who has served very ably as editor of *Sci-Tech News.* This will be her last issue as editor. Susan Fingerman will step into Bonnie's shoes with the February 2005 issue. Bonnie, I can't thank you enough for all the hard work you've done as editor. *STN* is a publication we can all be proud of, and I hope you look back on your years as editor with pride. Also, I would like to welcome Susan to the job. I'm sure every division that participates in *STN* appreciates how you've stepped up to the plate.

As for the goings-on within the Sci-Tech Division, please note the announcement in this issue of our annual awards. We have opportunities for students, practicing librarians, and international members, so please either apply for an award yourself or suggest it to any eligible member. I was once the happy recipient of a Sci-Tech Division award, which helped me travel to my first SLA Annual Conference in Philadelphia. Applying for an award is easy and can reap big dividends, so please consider it!

Speaking of the Annual Conference, the topics for the 2005 Sci-Tech Division sessions have been finalized and planning details are being firmed up. Along with our usual business meeting and newcomers' brunch, we are co-sponsoring another All-Sciences Reception at the Steamwhistle Brewery. We are the lead division for sessions on the science of hockey, our contributed papers, and an evaluation of Open Access resources and models. We are also co-sponsoring many other sessions, ranging from the Diversity Breakfast to a "technology petting zoo" where we plan to have several types of handheld electronic devices, such as PDAs, for participants to learn about. Our capable program planner, Ann Koopman, is working hard to get ready for Toronto. If she calls on you to help in some way, I hope you will do your part to make this meeting our best ever.

If there is anything I can do for our Sci-Tech Division members, please feel free to get in touch with me. I would love to hear your suggestions or answer your questions if I can. Have a great fall season!

2005 SCIENCE-TECHNOLOGY DIVISION AWARDS
Call for Nominations
The Science-Technology Division of the Special Libraries Association (SLA) Announces availability of the following awards.

The awards will be presented at the 2005 SLA Annual Conference in Toronto, Ontario, Canada, June 5-8, 2005. Annual Conference theme for 2005 is: "Putting Knowledge to Work ." Descriptions of the awards criteria and the nomination forms are below.

SCI-TECH ACHIEVEMENT AWARD
The Sci-Tech Achievement Award is the highest annual award presented by the Science-Technology Division and is reserved for those recipients whose professional work is marked by distinction and dedication to scientific and technical librarianship. The purpose of the award is to recognize those Division members who have made outstanding contributions to the Division and/or to the literature of science and technology librarianship in the past 1 to 5 years.

The $750 award will be presented annually, with a corresponding scroll describing the reason for the award. The Science-Technology Division Awards Committee reserves the right to withhold the award if a sufficient number of appropriate candidates are not nominated.

QUALIFICATIONS: Be a current member of the SLA and be a member of the Science-Technology Division for at least three years; be working currently in a library, information center, library school or other information capacity.

NOMINATIONS: Self-nominations are encouraged.

Include a list of accomplishments and activities over the past 1 to 5 years. The materials should be double-spaced. (750 words or less) Neatness, spelling and grammar will count in judging. Supporting documentation, although not mandatory, may include a current curriculum vita OR resume for the candidate, significant publications, supporting letters, etc.

DEADLINE FOR NOMINATIONS: April 1, 2005

S. KIRK CABEEN TRAVEL STIPEND AWARD
The S. Kirk Cabeen Travel Stipend Award is offered to a library school student or first time conference attendee. A $750 award to be used toward expenses of attending the SLA Annual Conference in Toronto, Ontario, Canada June 2005.

QUALIFICATIONS: Be a library school student or first time attendee; be a current member of SLA, preference going to Science-Technology Division members; must be attending his or her first SLA conference;

NOMINATIONS: Self-nominations are encouraged. All nominations must include the following:
A short essay (500 words or less) on the theme of the 2005 Annual Conference: "Putting Knowledge to Work." The essay should be double-spaced. Neatness, spelling and grammar will count in judging. Supporting documentation, although not mandatory, may include a current curriculum vita OR resume for the candidate, significant publications, supporting letters, etc.

Applications should also mention if they are currently applying for other SLA division awards.

DEADLINE FOR NOMINATIONS: April 1, 2005

2005 BONNIE HILDITCH INTERNATIONAL SCIENCE-TECHNOLOGY DIVISION LIBRARIAN AWARD

The International Science-Technology Division Librarian Award is presented to a librarian outside of the United States and Canada. The purpose of the award is to provide an opportunity for a librarian outside of the United States and Canada to attend the annual Special Libraries Association (SLA) conference. The award will consist of conference registration and airfare, not to exceed US$1000. The SLA annual conference will held in Toronto, Ontario, Canada, June 5-8, 2005.

The SLA Science-Technology Division Awards Committee reserves the right to withhold the award if a sufficient number of appropriate candidates are not nominated.

QUALIFICATIONS: Be a current member of SLA, preference given to members of the SLA Science-Technology Division.

Reside and work outside of the United States and Canada. Be working currently in a library, information center, library school or other information capacity, preferably in the science and technology area.

Submission should be in English.

NOMINATIONS: Self-nominations are encouraged. Send a typed and signed statement including information on the candidate's professional career, professional activities or offices held, special projects or services, publications, and any other related functions that qualify the person for the award.

Documentation, although not mandatory, may include a current curriculum vita OR resume for the candidate, significant publications, supporting letters, etc.

DEADLINE FOR NOMINATIONS: January 7, 2005

APPLICATION PROCEDURES for the INTERNATIONAL SCIENCE-TECHNOLOGY DIVISION LIBRARIAN AWARD

1. Fill out the application. A copy is included below and on the Science-Technology Division's Web site: http://www.sla.org/division/dst/

2. Include a current resume and relevant materials as outlined in the criteria for the award.

POST AWARD REQUIREMENTS:
1. Recipient will write a brief article (approximately 1,000 words) on the conference experience for the
November 2005 *Sci-Tech News*.

2. Recipient will be asked to serve on the Science-Technology Division Awards Committee the following year in order to provide for the continuity and enthusiasm of this award.

NOTIFICATION:
1. Applicants will receive notification of award status by early February 2005. The award check will be sent to the recipient as soon as the receipts are received by the Awards Chairperson.

2. The recipient's names will be posted to the Science-Technology Division's Web site.

3. The announcement and introduction of the recipient will take place at the Science-Technology Division's Annual Business Meeting/breakfast. Details forthcoming.

E-mail nominations and materials preferred. Hard copy/print materials accepted.

SUBMIT THE ABOVE DOCUMENTS AND NOMINATIONS FORM
FOR THE INTERNATIONAL LIBRARIAN AWARD TO:

Cheryl A. Hansen
Science-Technology Division Award Committee
Engineering Systems Inc.
3851 Exchange Ave.
Aurora, IL 60504
E-mail: cahansen@esi-il.com
(630)851-4566 x238
Fax" (630) 851-4870

Please allow 2 weeks for mail delivery.

Nomination Form (Please type or print):

Nominee:
_____

Complete Title:
_____

Employer:
_____

Address:
_____

_____

Zip/Postal Code: _____ Country: _____

Business Phone: (___)_____ Home Phone: (___)_____

Fax: (___)_____ E-mail: _____

If student, provide school and anticipated graduation date:

_____

Your name: _____

Signature: _____

Your full mailing address:
_____

_____

APPLICATION INSTRUCTIONS FOR THE SCI-TECH ACHIEVEMENT AWARD AND S. KIRK CABEEN TRAVEL STIPEND AWARD

APPLICATION PROCEDURES:

1. Fill out the Nomination Form. A copy is included below and on the Science-Technology Division's Web site: http://www.sla.org/division/dst/
2. Include a current resume and relevant materials as outlined in the criteria for the award.

POST AWARD REQUIREMENTS:

1. Recipient (s) will write a brief article (approximately 1,000 words) on the conference experience for the November 2005 Sci-Tech News.
2. Recipient (s) will be asked to serve on the Science-Technology Division Awards Committee in the following year to provide for the continuity and enthusiasm of the awards.

NOTIFICATION:

1. Applicants will receive notification of award status by early April 2005. The award checks will be sent to the recipient as soon as the receipts are received by the Awards Chairperson.
2. The recipients' names will be posted to the Science-Technology Division's Web site.
3. The award will be announced and presented to the recipient at the Science-Technology Division's Annual Business meeting/breakfast. Details forthcoming.

Nominations Form for 2005 Science-Technology Division Awards

Indicate which award (s) you are applying for:

_____ Sci-Tech Achievement Award _____ S. Kirk Cabeen Travel Stipend Award

Nomination Form (Please type or print):

Nominee: _____

Complete Title: _____

Employer: _____

Full Mailing Address: _____

Zip/Postal Code: _____ Country: _____

Business Phone: (___) _____ Home Phone: (___) _____

Fax: (___) _____ E-mail: _____

If student, provide school and anticipated graduation date: _____

/

Your name: _____

Signature: _____

Your full mailing address: _____

SUBMIT APPLICATION DOCUMENTS AND THE NOMINATION FORM TO:

Cheryl A.Hansen
Chair, Science-Technology Division Award Committee
Engineering Systems Inc.
3851 Exchange Ave.
Aurora, IL 60504

E-mail: cahansen@esi-il.com
(630) 851-4566 x238
Fax: (630) 851-4870

Please allow 2 weeks for mail delivery.

Transportation Division — Betty Lou Hicks, Chair

The Transportation Division promotes the exchange of knowledge and information in transportation, both in general or in one of its many subdivisions including air, highway, rail, and water transort, and multimodal transportation.

Toronto, here we come! Plans are progressing nicely for programs and fun times in Toronto. I was pleased to learn that so many members plan to attend the conference (approximately thirty so far).

Programs will include the GTRIC roundtable on Sunday from 8:00 a.m. until 4:00 p.m., the division's business meeting at noon on Monday, and our one co-sponsored program with ERMD on Tuesday afternoon. The topic is "Urban Sprawl" and I have asked the University of Minnesota, the FHWA, and the City of Toronto's "Bring Back the Don" committee to provide speakers. As for entertainment, I am working with our Canadian members, Karla Aarash and Jennifer Osther, to plan a no-host dinner and open house for our members.

As the theme for this year, I chose "Get Hip." At the business meeting in Nashville, I tried to stress the importance of "getting hip" by attending the various programs sponsored by the division.

If you really want to get a good bargain at convention, attend the GTRIC roundtable on Sunday. The Government Transportation Research Information Committee is really not a committee, but rather a program sponsored by the division to bring together news about the field of transportation. During the meeting, reports are given about happenings on the international and national levels involving transportation. If you need to know what is happening with the FHWA, TRB, the National Transportation Library, AASHTO, the Texas Transportation Institute, the TLCat, or any other transportation entities, attend the GTRIC meeting. Networking is an important part of any GTRIC meeting, so come and get to know the government, academic, and corporate librarians who are division members.

In keeping with the "Get Hip" theme, and after surveying the membership, the Executive Board has decided to discontinue publishing in *Sci-Tech News.* This will be our last issue. The division has established a Web site at http://www.library.northwestern.edu/transportation/slatran/ to disseminate news. The entire membership will need to help with articles and news items, which can be submitted to Seyem Deus Petrites at the Harmer E. Davis Library at the University of California, Berkeley (see the Web site for her complete address). Seyem will announce changes and additions to the Web site through the division's discussion list; visit the Web site for instructions on subscribing. News articles will be archived. The division has enjoyed being a part of *Sci-Tech News* but feels it is time to go electronic with its news.

We wish to thank Bonnie Osif for the great coverage we have received in *Sci-Tech News* and wish her well as she leaves the position of editor. We also congratulate and send best wishes to Susan Fingerman as she assumes the role of editor.

Betty Lou Hicks

The Transportation Division Welcomes These New Members

Vivienne R Beckett
angelfood26@yahho.com

Ms. Diane L. Duffey
Habush Habush & Rottier Library
777 E Wisconsin Ave Ste 2300
Milwaukee, WI 53202
Phone: 1-414-271-0900
Fax: 1-414-271-6854
dduffey@habush.com

Neil S. Herbert
NC Dept of Transportation
Research & Analysis
1549 Mail Service Center
Raleigh, NC 27699-1549
Phone: 919-715-2461
nshebert@dot.state.nc.us

Ruth S. Letson
TN Dept of Transportation
Library
STE 300
J.K. Polk Bldg.
Nashville, TN 37243-0345
Phone: 1-612-741-2330
Fax: 1-615-741-1791
ruth.letson@state.tn.us

Ms. Amy E. Tursky
Company: Federal Aviation Admin
Department: ATO-A Library
800 Independence Ave SW
Rm 931
Washington, DC 20591-0001
Phone: 1-202-493-4496
Fax: 1-202-267-5951
amy.tursky@tasc.dot.gov

The Transportation Division Professional Achievement Award Call for Nominations

Since 1982, the Transportation Division of the Special Libraries Association has been awarding the Professional Achievement Award to a past or present member of the Division on the basis of outstanding contributions or service to the Transportation Division. This contribution or service may take the form of contributions to library and transportation literature or bibliography, to the work and effectiveness of the Special Libraries Association and the Transportation Division, or to the transportation field through organizational work or publications. The Award is not made posthumously. The purpose of the Award is to honor those who have rendered distinguished service or have made a significant contribution to transportation libraries and librarianship.

Nominations must be received by January 1, 2005.

Presentation of the Award will be made at the annual business meeting of the Transportation Division. The Executive Board of the Division is the judging committee for this Award.

Name of Nominee:_____ Date:_____

Address of Nominee: _____

_____

Phone:_____ E-mail:_____

Contributions/Service (Use additional paper, if necessary):

Name of Nominator:_____

Address of
Nominator:_____

Phone:_____ E-mail_____

Send nominations by mail, fax or e-mail to:
Mary Kathleen Geary, Transportation Library, Northwestern University, 1970 Campus Drive, Evanston, Il 60208. Phone: (847)467-5325. FAX: (847) 491-8601. E-mail: m-geary@northwestern.edu

Gosh! I always wondered....

Dr. Juana Noit

I thought it might be fun to look at the development of some of the technologies that we use everyday, yet take for granted. Every so often a movie or story presents the scenario of a world where things go wrong and the survivors need to pick up the pieces. It becomes clear how many of us simply don't know what goes on behind the screen, keypad, etc. I wonder how many of us could build simple shelter, grow/raise enough food and preserve it to survive. Don't want to be a downer here, but when we move on we need to remember the past too. So, in an effort to look behind what we use, let's investigate:

The microwave. Whether you use it just to pop your favorite movie snack or to create an entire dinner, the push button ease makes it easy to forget that there is some sophisticated technology behind that touch pad. The first microwave for food was created by Boots and Randall at Birmingham University in Great Britain. They utilized the wavelength research of Heinrich Hertz of Germany. The microwave uses the high frequency electromagnetic waves (microwaves) generated by a magnetron. These waves are absorbed by food molecules (fat, water, sugars, etc.) vibrate, and produce heat. The heat penetrates the food, cooking faster than the conventional method that "works its way in from the outside." The microwave oven itself stays cool. So, if you have a power source, a magnetron, and an oven that will contain the radiation, you're ready to make your own oven!

Cell phones are not really phones – they're cameras, calculators, web browsers, email, games, appointment calendars, etc. But how do they work?

Basically a radio, the cell phone transmits on a low frequency to a cell (a transmitter that covers a small area). As you move, the signal moves from one cell to another automatically. This is why you can talk while driving – not that you should! If you are outside your carrier area, you "roam" and use other company cells. And when you are out of range of any cell, well, you don't get a signal and can't communicate. Inside is a complex series of circuit boards, microprocessors, keypad contacts, memory chips, compressors, decompressors – you get the picture. Complex!

Maybe we need to be practical. Much as we love our cell phones and microwaves, if we were stranded on an island (like in *Lost*) or caught in a natural disaster (let's be honest, are any of those disaster movies even remotely realistic?), we might be looking at things to help us survive. Cell phones are nice and so is microwave popcorn but we could live without them.

One thing we'd want is a timepiece. The clock has evolved over time. Now we have glow in the dark, multiple purpose watches that are as much fashion statements as they are tools. However, to keep time we need something simple and dependable. To fit that bill, you might want to look at a pendulum clock.

Dating back to the 1600's, the principle of pendulum clocks is based on the length of the pendulum. This then determines the period, or the "timing." By changing the length of the pendulum you can change the rate of the swing and therefore the timing. To read the time, add a face to your clock and some hands. To make the connection between the pendulum and the hands, add a series of gears (sprocketed wheels). The gears are normally arranged next to each other but will have different ratios so the clock can differentiate between seconds, minutes, and hour hands. So the gear for the second hand will turn and move the hand 60 times before the minute hand is moved.

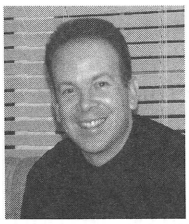
Now, there is no perpetual motion so something has to provide the energy. In the case of our pendulum clock weights provide the energy as they slowly lower to the ground. A pull on the chain, the weight is raised again and the clock continues to tick!

The reality is most of our devices are rather difficult to make from scratch, although some of our readers might have the skills. We are an inventive group! But I think we need to admire the complexity of our world and learn more about it because the pace of progress just keeps increasing. And we might need to realize that we would have a difficult time trying to remake our technological world because we just don't know enough about what is behind those buttons and keypads.

This is my last column. I've enjoyed sharing my personal quest to answer some of my curiosities with you. I hope you've learned something and like me will continue to ask questions because you've always wondered too!

Web Reviews

David Hook



This month, a look at robotics resources

Aerospace Robotics Laboratory
<http://arl.stanford.edu/home.html>
Stanford University's Aerospace Robotics Laboratory (ARL) website is a showcase for the lab's research. The research focus of the ARL is "improving performance through the application of feedback control, integrated sensing systems, and task-level autonomy." The site contains information about the lab's past and present research projects, published papers and mpeg movies of robotics projects.

Carnegie Mellon Robotics Institute
<http://www.ri.cmu.edu/>
Carnegie Mellon University has a wealth of information on robotics. The main site has information about the institute, research areas and upcoming conferences of interest. CMU also has several other useful robotics related sites. The National Robotics Engineering Consortium Robotics Academy for Children < http://www.rec.ri.cmu.edu/education/> is an educational site aimed at developing children's interest in robotics. The Field Robotics Center at the Robotics Institute <http://www.frc.ri.cmu.edu/> gives information about the Center and the study of mobile robots in field environments such as work sites and natural terrain. The Social Robotics Project < http://www-2.cs.cmu.edu/afs/cs/project/robocomp/social/www/index.html> is working at developing a robot with a human personality.

JPL Robotics
<http://robotics.jpl.nasa.gov/>
NASA's Jet Propulsion Laboratory (JPL) has its own robotics site. This site contains detailed information about some of the robotics projects that JPL is developing as well as the information about the people themselves. Also on JPL's web page is information about their Mars rovers at <http://marsrovers.jpl.nasa.gov/home/index.html> and some of the images that the Mars Exploration rover has taken: <http://marsrovers.jpl.nasa.gov/gallery/press/spirit/>

Machinebrain
<www.machinebrain.com>
Machinebrain is a great source for the latest news and information about robots, robotic technology, smart machines, and AI. The site is also a subject index for many subjects related to robotics and artificial intelligence. Robot enthusiasts can also connect through their message board and online classified ads.

RobotBooks
<www.robotbooks.com>
If you are looking for the latest books on the subject of robotics, RobotBooks is the place to check out. It is a great resource for finding the latest books on robotics, as well as robot kits, toys, parts, magazines, movies, and other robotics-related items.

RobotCafe
<www.robotcafe.com>
RobotCafe is a directory to over 600 related robotic sites, along with an online bookstore, discussion groups, and an e-mail newsletter. The site has daily updated links to news articles

RoboticsOnline
<http://www.roboticsonline.com>
Sponsored by the Robotic Industries Association (RIA), this site provides information about the robotics industry including statistics, forecasts, trends and key company listings. It is an excellent resource for finding suppliers, opportunities and customers in the industry. The site will also help you keep current on upcoming conferences and new developments.

Robotics Trends: Current Uses for Robotics Technology
<http://www.roboticstrends.com/>
This site provides links to articles on current trends in robotics. Industry-related articles are picked from external sources on such subjects as personal, service, security and defense, and sports and entertainment robotics.

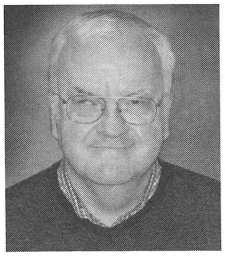
Robot Information Central
<www.robotics.com/robots.html>
From Arrick Robots, this site has links to many robotics resources by subject. Arrick Robotics sells parts, so the robot hobbyist can also order parts online through this site. There are news links, resources for school projects and even a photo gallery of featured robots.

Robots.net
<www.robots.net>
Robot enthusiasts can post links and information about robot competitions, robotics news, and new products on this site.

The Tech Museum of Innovation
<http://www.thetech.org/robotics/>
This online exhibit was designed to show how human and robotic systems sense, think and act. The site features a history of robots, an exhibition of art robots, panelist discussions on ethics and robotics in the 21st century and an interactive feature where you can control a robot online.

New Science and Technology Journals

Earl Mounts



Discrete Optimization. 1572-5286. Elsevier. v.1, 2004. 4/year. $475.00. http://www.elsevier.com/wps/find/journaldescription.cws_home/702998/description#description

Discrete Optimization publishes research papers on the mathematical, computational, and applied aspects of all areas of integer programming and combinatorial optimization. In addition to reports on mathematical results pertinent to discrete optimization, the journal welcomes submissions on algorithmic developments, computational experiments, and novel applications (in particular, large-scale and real-time applications). The journal also publishes clearly labelled surveys, reviews, short notes, and open problems.

Emotion. 1528-3542. American Psychological Association. v.1, 2001. 4/year. $184.00. http://www.apa.org/journals/emo.html

Emotion publishes significant contributions to the study of emotion from a wide range of theoretical traditions and research domains. *Emotion* includes articles that advance knowledge and theory about all aspects of emotional processes, including reports of substantial empirical studies, scholarly reviews, and major theoretical articles. Submissions from all domains of emotion research are encouraged, including studies focusing on cultural, social, temperament and personality, cognitive, development, health, or biological variables that affect or are affected by emotional processes. Studies of psychopathology contributing to the understanding of the role of emotional processes in affective and behavioral disorders are also welcome. Reports of work at the animal and molecular levels will be considered if they help to elucidate fundamental mechanisms of emotion. Articles that present or discuss theoretical perspectives on the basis of published data may also be accepted. Comprehensive reviews of the empirical literature in an area of study are acceptable if they contain a meta-analysis and/or present novel theoretical or methodological perspectives.

Fixed Point Theory and Applications. 1687-1820. Hindawi Publishing Corp. v.1, 2004. 4/year. $195.00. http://fpta.hindawi.com/about.html

Fixed point theorems give the conditions under which maps (single or multivalued) have solutions. The theory itself is a beautiful mixture of analysis (pure and applied), topology, and geometry. Over the last 50 years or so the theory of fixed points has been revealed as a very powerful and important tool in the study of nonlinear phenomena. In particular, fixed point techniques have been applied in such diverse fields as biology, chemistry, economics, engineering, game theory, and physics. The aim of this journal is to report new fixed point theorems and their applications where the essentiality of the fixed points theorems is highlighted.

IEEE Transactions on Automation Science and Engineering (T-ASE). 1545-5955. IEEE Robotics and Autpmation Society. v.1, 2004. 4/year. $370.00. http://www.ieor.berkeley.edu/~goldberg/t-ase/

Automation plays an increasingly important role in the global economy and in our daily lives. Engineers strive to combine automated devices with mathematical and organizational tools to create complex systems for a rapidly expanding range of applications and human activities. To meet these challenges, the IEEE Robotics and Automation Society has established a major archival journal on *Automation Science and Engineering* to publish the abstractions, algorithms, theory, methodologies, models, systems, and case studies that can be applied across industries to significantly advance efficiency, quality, productivity, and reliability for society. The new *Transactions* will define automation very broadly, including applications such as DNA chip and biological sample handling, agriculture, security, healthcare, transportation, as well as the myriad of applications related to manufacturing.

Infosecurity Today. 1742-6847. Elsevier. v.1, 2004. 6/year. $183.00. http://www.elsevier.com/wps/find/journaldescription.cws_home/702760/description#description

Infosecurity Today includes articles on in-depth analysis of specific business and management issues relating to information security, evidence-based experiences and applications from within all industry sectors, unbiased coverage of the latest developments and products, representative views and opinions from industry experts, and detailed information on the applications used by, and challenges facing specific industries in keeping systems secure.

International Journal of Electronic Government Research. 1548-3886. Idea Group Inc. v.1, 2005. 4/year. $195.00. http://www.idea-group.com/journals/details.asp?id=4298

The *International Journal of Electronic Government Research* is a peer-reviewed multidisciplinary international journal that publishes original research about electronic government. Electronic government is broadly defined within topics such as but not limited to the hardware and software technology, e-government adoption and diffusion, e-government policy, e-government planning and management, e-government applications and e-government impacts. The journal also serves as a forum for scholars and practitioners to present theoretical and philosophical discussions on current issues relating to the practice of electronic government. Topics covered include best practices in e-government, governance and electronic democracy, information policy, information privacy, internal government processes and intranets, and technology adoption and diffusion.

International Journal of Geometric Methods in Modern Physics (IJGMMP). 0219-8878. World Scientific. v.1, 2004. 4/year. $299.00. http://www.worldscinet.com/ijgmmp/ijgmmp.shtml

IJGMMP publishes short communications, research, and review articles devoted to the application of geometric methods (including differential geometry, algebraic geometry, global analysis, and topology) to quantum field theory, non-perturbative quantum gravity, string and brane theory, quantum mechanics, semiclassical approximations in quantum theory, quantum thermodynamics and statistical physics, quantum computation and control theory.

Journal of Chemical Theory and Computation. 1549-9618. American Chemical Society. v.1, 2005. 6/year. $975.00. http://pubs.acs.org/journals/jctcce/index.html

The *Journal of Chemical Theory and Computation* will publish papers reporting new theories, methodology, and/or important applications in quantum chemistry, molecular dynamics, and statistical mechanics. Topics will include advances in ab initio quantum mechanics, density functional theory, molecular design, properties of new materials, surface science, Monte Carlo simulations, solvation models, QM/MM calculations, biomolecular structure prediction, and molecular dynamics in the broadest sense including gas-phase dynamics, ab initio dynamics, biomolecular dynamics, and protein folding. The journal will address specific computational and theoretical approaches to chemistry, with particular emphasis on physics related topics.

Journal of Hyperbolic Differential Equations (JHDE). 0219-8916. World Scientific. v.1, 2004. 4/year. $202.00. http://www.worldscinet.com/jhde/jhde.shtml

JHDE publishes original research papers on nonlinear hyperbolic problems and related topics, of mathematical and/or physical interest. Specifically, it invites papers on the theory and numerical analysis of hyperbolic conservation laws and of hyperbolic partial differential equations arising in mathematical physics. Specific topics include the theory of nonlinear hyperbolic systems of conservation laws, hyperbolic differential equations of mathematical physics, Lorentzian geometry, nonlinear hyperbolic systems arising in continuum physics, general problems that are dominated (but not exclusively driven) by finite speed phenomena such as dissipative and dispersive perturbations of hyperbolic systems, and convergence analysis of numerical methods for hyperbolic equations: finite difference schemes, finite volumes schemes, etc.

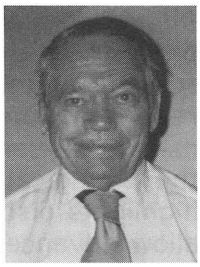
Journal of the Royal Society Interface. 1742-5689. The Royal Society. http://www.pubs.royalsoc.ac.uk/interface_homepage.shtml

Interface is a new international journal publishing papers from the interface between the physical sciences and life sciences. *Interface* publishes research applying chemistry, engineering, materials science, mathematics and physics to the biological and medical sciences; it also highlights discoveries in the life sciences that allow advances in the physical sciences. Both sides of the interface are considered equally. Recent articles cover the topics of creep function in living cells, Ricin and molecular 'fingerprinting' in living cells, optical properties of the scales of *Morpho rhetenor* butterflies, developing robust collision detectors, fibrillar surfaces in geckos allow adhesion to a variety to surfaces, and fibrillar surfaces adhere better than flat ones.

Logical Methods in Computer Science. http://www.lmcs-online.org/

Logical Methods in Computer Science is a fully refereed, open access, free, electronic journal. It welcomes papers on theoretical and practical areas in computer science involving logical methods, taken in a broad sense. Papers are refereed in the traditional way, with two or more referees per paper. Copyright is retained by the author. Full-text access to all papers is freely available. No registration or subscription is required, and a free email notification service is available. Even though the journal is divided into volumes for convenience, papers are published on the internet as soon as they are accepted for publication. The goal is to have a fast turnaround of about six months from submission to publication. *Logical Methods in Computer Science* is an overlay journal of the Computing Research Repository (CoRR): see arXiv.org. A disk archive and a hardcopy of the contents of Logical Methods in Computer Science is maintained by the Department of Theoretical Computer Science at the Technical University of Braunschweig and also by a large number of mirror sites around the world.

Sci-Tech Book News Reviews — Ellis Mount, Selector



The following section consists of 100 book reviews selected from *Sci-Tech Book News*, reprinted with the permission of Book News Inc. This review journal is published four times a year, each issue reviewing over 2,000 new titles in the physical and biological sciences, mathematics, engineering, computer science, technology, and agriculture. For a sample issue and subscription information, contact Book News Inc. at 5739 NE Sumner Street, Portland, OR 97218. Ph: (503)281-9230; Fx: (503)287-4485; E-mail: booknews@booknews.com.

TECHNOLOGY (GENERAL)

T55 2003-055644 0-7546-3435-3
Teaming up; components of safety under high risk.
Title main entry. Ed. by Rainer Dietrich and Kateri Jochum.
Ashgate Publishing Co., ©2004 135 p. $69.95
Problems of human communication and interaction can lead to dangerous accidents and errors in high-risk situations. Seven essays explore questions of team interaction. Dietrich (psycholinguistics, Humboldt U., Germany) and Jochum (the coordinator for the colloquium from which these essays were taken) present seven contributions from academics and researchers exploring the question of human interaction in space travel, in policing settings, on large-scale construction sites, in disaster relief operations, in aviation, and in medicine.

T57 90-6764-398-X
Queueing theory.
Bocharov, P.P. et al. (Modern probability and statistics)
VSP Publications, ©2004 446 p. $270.00
Concentrating on problems and approaches that are the most frequently used, this book aims to familiarize readers with tools, techniques, and applications of queueing theory. The main body of the book is preceded by an introductory chapter devoted to preliminary topics from probability theory. Later chapters offer formal descriptions of queueing systems, including Markov queueing systems, then delve into *M/G*/1/infinity systems, *M/G*/1/*r* less-than-or- equal-to-infinity systems, and *BMAP/SM*/1/*r* less-than-or- equal-to-infinity systems. Great attention is also paid to *MAP/G*/1/*r* queueing systems with special service disciplines such as priority systems. Author information is not given. VSP is a subsidiary of Brill Academic Publishers.

T57 0-471-44454-5
System safety for the 21st century; the updated and revised edition of System safety 2000.
Stephans, Richard A.
John Wiley & Sons, ©2004 385 p. $89.95
Stephans, a member of the System Safety Society, summarizes the current state of "front-end" risk control techniques. The text serves as a resource for both students and practitioners, offering basic information about the identification, evaluation, analysis, and control of hazards in components, systems, subsystems, processes, and facilities. Integrating changes in the field that have occurred since the publication of the first edition, this edition includes a new section on professionalism for system safety and other safety practitioners, and updated material on protecting against external threats in light of the global terrorist threat.

T58 2004-101915 0-7695-2108-8
Information technology; coding and computing; proceedings; 2v.
International Conference on Information Technology: Coding and Computing (5th: 2004: Las Vegas, NV) Ed. by Pradip K. Srimani et al.
Computer Society Press, ©2004 p. $374.00 (pa)
The 297 papers of this two-volume proceedings were first presented at the Fifth International Conference on Information Technology, held in April 2004 in Las Vegas, Nevada. The papers, which report on research by engineers worldwide, are grouped into several major topics, including information assurance and security; IT education, curriculum and assessment; e-commerce/education; web and IR technologies; and data mining. Individual paper topics include a security protocol for certified e-goods delivery, accountability logic for mobile payment protocols, achieving distributed trusted services, impact of professions in systems development, and a mathematical model of similarity and clustering. Author indexed only.

T58 2004-041026 1-58053-828-2
Integrated IT project management; a model-centric approach.
Bainey, Kenneth R. (Artech House project management library)
Artech House, ©2004 481 p. $83.00
Using real-world policies, roles and responsibilities, templates, process flows, and checklists, Bainey (an IT officer for the Government of Alberta) presents an approach to integrate IT project management. He examines common problems, offers suggestions for improving communications, and discusses best practices. Particular attention is given to the relationships between business processes, project demands, and information technology.

T58 2004-007905 1-55617-877-8
Scada; supervisory control and data acquisition, 3d ed.
Boyer, Stuart A.
ISA, ©2004 219 p. $79.00 (pa)
Supervisory control and data acquisition (SCADA) is a technology that enables users to collect data from distant facilities and send control instructions to those facilities. This text provides introductory technical material about SCADA systems. Written in accessible language and designed for self-study, the text addresses the layout of SCADA systems and deals with communications and the basic building blocks of SCADA systems. Chapter exercises and examples from many industries are included. The text is for managers, supervisors, engineers, operators, and technicians who will use SCADA systems, and for students in technical schools. Author information is not given.

T58 2003-062639 0-566-08559-3
Buying information systems; selecting, implementing and assessing off-the-shelf systems.
James, David.
Gower Publishing, ©2004 128 p. $89.95
Writing for technology and other organizational managers, James (a Principal Engineer for a UK supplier of automation systems) provides an overview of the information systems procurement process and describes a framework for making cost- risk decisions inherent in the procurement process. He leads the reader through a step-by-step approach to procurement discussing such topics as who should be involved in the decision-making process, selecting suppliers and vendors, and managing and evaluating implementation. Distributed by Ashgate.

T58 2003-065157 1-55570-493-X
Information architecture; designing information environments for purpose.
Title main entry. Ed. by Alan Gilchrist and Barry Mahon. (Managing information for the knowledge economy)
Neal-Schuman, ©2004 266 p. $75.00
This book is composed of 12 essays and five case studies, each exploring an aspect of information architecture, a nascent field that has not yet been fully defined. While detailed and rigorous, the contributions are not opaque to the non- expert and are readable by anyone with a casual acquaintance with computer networking and organizational terminology. The material is divided into four broad categories on the design environment, software environments, management of metadata, and the user interface. The book is aimed at anyone with an occupation that makes it reasonable to describe them as an "information professional."

T174 3-527-30750-8
Nanotechnology; an introduction to nanostructuring techniques.
Köhler, Michael and Wolfgang Fritzsche.
Wiley-VCH, ©2004 272 p. $155.00
Nanotechnology has become a major line of inquiry in recent scientific research. Köhler (physical chemistry and microreaction technology, Technical U. of Ilmenau, Germany) and Fritzsche (biotechnical microsystems, Institute for Physical High Technology, Germany) present an introduction to the principles of creating nanostructures and their uses. Chapters cover molecular basics, the microtechnological foundations of the field, the preparation of nanostructures, nanotechnical structures, characterization of nanostructures, nanotransducers, and technical nanosystems.

T385 2004-106118 0-7695-2137-1
Theory and practice of computer graphics; proceedings.
International Conference on Theory and Practice of Computer Graphics (2004: Bournemouth, UK) Ed. by Mark W. Jones.
Computer Society Press, ©2004 233 p. $169.00 (pa)
Thirty papers from the June 2004 conference present new solutions being developed for data visualization, virtual environments, animation interfaces, rendering, modeling, and imaging. Works in progress analyze requirements for the visualization of ontological evolution, multiple tool actions for virtual sculpting, and the distribution of

clutter within a virtual scene. Other topics include an XML-based system for presenting virtual museum exhibitions, the effect of music on the perception of animated sequences, a new integration of photogrammetry and laser scanning for image-based rendering, user validation of image quality assessment algorithms, and real-time simulation of small scale impact debris using hierarchical particle systems. No subject index is provided.

T385 2003-054848 0-13-113816-2
AutoCAD in 3 dimensions using AutoCAD 2004. (CD-ROM included)
Ethier, Stephen J. and Christine A. Ethier.
Prentice Hall, ©2004 502 p. $65.00 (pa)
This hands-on, lab- and exercise-intensive tutorial offers a visual look at 3D modeling, blending theory and practice to explain both abstract concepts involved in mastering computer-aided drafting and three dimensions and in the application of that theory. This edition of the book/CD-ROM text features additional labs, a re-ordering of learning concepts to meet current 3D modeling methods, a color insert that displays images of completed projects, a tear-out reference chart, and outlines of three important application programs. The CD- ROM contains model files. Some background in computer-aided design is assumed. The authors are consultants in the private sector.

T385 0-7695-2171-1
Computer graphics international; proceedings.
CGI Conference on Computer Graphics and Applications (21st: 2004: Crete, Greece).
Computer Society Press, ©2004 650 p. $71.00 (pa)
This book contains the proceedings of a June 2004 conference dealing with topics in computer graphics, such as mesh representation, surface modeling and rendering, image-based rendering, illumination models, collision detection, virtual humans, deformable objects, and computer animation. Some specific topics include modeling and animating cartoon hair with NURBS surfaces, point set surface editing techniques based on level-sets, a virtual light field approach to global illumination, and bounding volumes for linearly interpolated shapes. Other topics are simplification of vector fields over tetrahedral meshes, tiled shadow maps, and extracting 3D stylized accentuation effects from a painted image. There is no subject index.

T385 2003-103155 0-7695-2075-8
Shape modeling and applications; proceedings.
International Conference on Shape Modeling and Applications (2004: Genova, Italy). Ed. by Franca Giannini and Alexander Pasko.
Computer Society Press, ©2004 402 p. $177.00 (pa)
A June 2004 conference brought together researchers from around the world to exchange ideas and experiences related to various aspects of shape modeling and processing. Papers from the conference focus mainly on modeling implicit surfaces, surface meshes, point sets and subdivision surfaces, shape retrieval, feature-based modeling and deformations, and interactive modeling. Some specific topics include stroke-input methods for immersive styling environments, modeling the coronary artery tree, view-dependent streaming of progressive meshes, robust watermarking of point-sampled geometry, mold accessibility via Gauss map analysis, nonlinear polynomial systems, and multi- minimizations for shape control of fully free-form deformation features. There is no subject index.

ENGINEERING (GENERAL, CIVIL)

TA151 2003-055215 0-8493-1587-5
CRC handbook of engineering tables.
Title main entry. Ed. by Richard C. Dorf. (Electrical engineering handbook series)
CRC Pr., ©2004 628 p. $99.95
Dorf (electrical and computer engineering, University of California- Davis) presents reference material on electrical and computer engineering, civil and environmental engineering, chemical engineering, chemistry and material science, mechanical engineering, and general engineering and mathematics. The 450 tables and figures are compiled from 51 books and include the most important data widely used by the engineering practitioner, encompassing engineering methods, materials, devices, chemistry, and mathematics. Biomedical engineering, signal processing, mechatronics, MEMS and NEMS, communications, and ocean engineering are some of the areas covered.

TA169 2003-069580 1-58488-471-1
Design and analysis of accelerated tests for mission critical reliability.
LuValle, Michael J. et al.
Chapman & Hall / CRC, ©2004 236 p. $99.95
This study presents innovative theory and meth-

ods for recognizing and handling complicated cases. The theory integrates a physical understanding of underlying phenomena and the statistical modeling of observation "noise" to provide a single framework for accelerated testing. The treatment include general approaches compatible with various software packages. The authors are reliability specialists working in private industry.

TA174 0-7695-2159-2
Rapid system prototyping; proceedings.
IEEE International Workshop on Rapid System Prototyping (15th: 2004: Geneva, Switzerland)
Computer Society Press, ©2004 245 p. $170.00 (pa)
Papers from a 2004 workshop present the latest work from academia and industry on how to design, test, and validate better hardware and software systems in less time and for less money. Material represents perspectives from disciplines including software, hardware, CAD tools, simulation, verification and validation, prototyping, and testing. Technologies involved include software systems, reconfigurable computing, and custom hardware; applications covered range from aerospace to telecommunications in military and commercial sectors. Some specific subjects examined are automatic generation of virtual prototypes, self-reconfiguration of communication interfaces, and rapid prototyping of an integrated testing and debugging unit. There is no subject index.

TA357 1-85312-986-0
Computational methods in multiphase flow 2; proceedings.
International Conference on Computational Methods in Multiphase Flow (2d: 2003: Santa Fe, NM) Ed. by A.A. Mammoli and C.A. Brebbia. (International series on advances in fluid mechanics)
WIT Press, ©2004 438 p. $217.00
The principle difficulty in modeling multiphase flows, according to editors Mammoli (U. of New Mexico, US) and Brebbia (Wessex Institute of Technology, UK), is the problem of differing length scales, with coupling in one or both directions. This problem requires the application of a diversity of numerical approaches and techniques. This diversity is reflected in the range of topics treated in this volume, the proceedings of an international conference on computational methods, held in November of 2003. Forty papers are organized into sections examining multiphase flow systems, multiphase flow and heat transfer, particle-flow interaction, experiment and theory of suspension, continuum suspension models, interface phenomena, bubble and drop dynamics, bubble flows, and cavitation. The US office of WIT Press is Computational Mechanics.

TA357 0-7918-0210-8
Fluid transients in pipeline systems; a guide to the control and suppression of fluid transients in liquids in closed conduits, 2d ed.
Thorley, A.R. David.
ASME, ©2004 279 p. $160.00
Thorley (fluid engineering, emeritus, City University, UK) has added new material on wave speeds in plastically deforming tubes, air vessel design, four-quadrant head and torque characteristics for pumps, and air relief and vacuum-breaking valves to this second edition of a text/reference for graduate students in engineering who need insight on fluid transient phenomena. Basic concepts on fluid transients are explained, and practical methods for the control of transients are reviewed, employing only such theory as is necessary. Discussion of applications follows, with presentation of eight examples, a short outline of computer modeling, and a section on accidents and incidents. A reference section provides numerous charts, tables, and other data useful for transient assessments.

TA357 1-85312-704-3
Advances in fluid mechanics V; proceedings.
International Conference on Advances in Fluid Mechanics (5th: 2004: Libson. Portugal) Ed. by M. Rahman et al. (Advances in fluid mechanics)
WIT Press, ©2004 454 p. $275.00
This book contains edited papers presented at a March 2004 conference on the latest developments in theoretical and computational fluid mechanics. Material is organized in sections on advanced computational methods, hydrodynamics, wave studies, multiphase flow, biofluids, and industrial applications. Transcritical transitions in swirling quasi- columnar flows, motions of floating bodies in time harmonic waves, and deposition of small particles from turbulent flows are some subjects discussed. Other topics examined include viscometric studies of oil- in-water mixtures at low shear rates, simulation of blood flow inhuman vessels, and simulation of complex biological flows and flow control problems on Cartesian grids. There is no subject index. The US office of WIT Press is Computational Mechanics.

TA365 2003-015379 0-415-29649-8
Acoustic absorbers and diffusers; theory, design, and application.
Cox, Trevor J. and Peter D'Antonio.
Spon Press, ©2004 405 p. $144.00
Co (acoustic engineering, Salford University, UK) and D'Antonio, CEO of a diffuser firm, explain how to measure, model, design, optimize, and apply diffusers and absorbers to alter the acoustic conditions of rooms, semienclosed spaces, and outdoor environments. They blend coverage of traditional designs with modern developments, covering practical and theoretical aspects of absorbers and diffusers. Concepts are illustrated with examples of installations and case studies. The book will be useful as a resource for new and experienced acousticians seeking an understanding of the evolution and current state of the art in diffuser research and practice. Spon Press is an imprint of Taylor & Francis.

TA401 0-87849-939-3
Designing, processing and properties of advanced engineering materials; proceedings; 2v.
Designing, Processing and Properties of Advanced Engineering Materials (3d: 2003: Jeju, Korea) Ed. by S.-G. Kang and T. Kobayashi. (Materials science forum; vs.449-452)
Trans Tech Publications, ©2004 1352 p. $319.00 (pa)
The papers of this two-volume proceedings were first presented at the 3rd International Symposium on Designing, Processing and Properties of Advanced Engineering Materials, held in Jeju, South Korea in November of 2003. The topics of the plenary and keynote lectures include asymmetric rolling as a means of texture and ridging control and grain refinement of aluminum alloy and steel sheets, high performance materials development, toughness assessment of materials, and aerosol deposition method for fabrication of nanocrystal ceramic layer. The remaining papers concern the design, properties and development of advanced engineering materials; and bio-materials, smart materials, and surface modification. The great majority of the contributors are engineers in South Korea and Japan; some are in the US and the UK. Distributed by Enfield.

TA403 2003-064977 0-13-048185-8
Engineering materials technology; structures, processing, properties, and selection, 5th ed.
Jacobs, James A. and Thomas F. Kilduff.
Prentice Hall, ©2005 883 p. $114.00
Jacobs (technology, Norfolk State University) and Kilduff (Thomas Nelson Community College) have reorganized the fifth edition of this text for students in engineering and industrial technology programs, breaking larger modules into smaller ones and grouping them into units. The text is designed to present fundamentals of materials science for students who have not completed formal courses in chemistry, physics, or mathematics beyond algebra. Coverage encompasses basic concepts of materials science, engineering, and technology dealing with traditional as well as advanced materials. There is new coverage in this edition of surface science and engineering, nanotechnology, morphing, and smart materials.

TA403 2002-115801 1-57590-147-1
Guide to the use of materials in waters.
Davies, Michael and P.J.B. Scott.
Natl/Assn/Corrosion/Engrs, ©2003 596 p. $132.00 (pa)
Davies and Scott, directors of an international corrosion consulting company, cover all construction materials used in potable and freshwaters, seawater, and industrial water in this reference for engineers, managers, plant operators, and inspectors involved in materials decisions, corrosion prevention, and installations in aquatic environments. They summarize the state of the art of building in aqueous environments in terms of materials properties, biological factors, and the effects of water properties and composition, and describe all major applications of materials in water, examining problems in water treatment, monitoring, and control. Information provided is intended to be detailed enough to allow readers to make informed decisions in specific cases. B&w photos are included.

TA403 2004-004219 0-471-45475-3
Handbook of advanced materials; enabling new designs.
Wessel, James K.
John Wiley & Sons, ©2004 645 p. $125.00
Wessel, an advanced materials consultant, brings together the latest information designers and product engineers need to know about advanced materials and their properties. Taking a comparative approach geared towards problem solving and material selection, academics and researchers in materials science and mechanical engineering describe characteristics of specific materials and give data on corrosion resistance, then look at advances in manufacturing and nondestructive evaluation. The book will serve as a bridge between the practitioner and the mate-

rial supplier involved in engineering, designing, manufacturing, and studying products that use advanced materials, and will also be useful to students in materials science.

TA404 1-85312-988-7
Computational methods in materials characterisation; proceedings.
International Conference on Computational Methods in Materials Characterisation (2003: Santa Fe, NM) Ed. by A.A. Mammoli and C.A. Brebbia. (High performance structues and materials series)
WIT Press, ©2004 350 p. $193.00
In these proceedings of the November 2003 conference, contributors consider how complex microstructures determine materials' physical properties and behavior, and work to bridge the gap between experimentation and modeling in materials characterization. Section topics include parameter identification, optimization of materials, thermomechanical behavior, damage mechanisms, composites, foams, polymers, concretes, and interface phenomena. Editors Mammoli (U. of New Mexico) and Brebbia (Wessex Institute of Technology) include an index of authors, but no subject index. The US office of WIT Press is Computational Mechanics.

TA409 0-87849-938-5
Advances in fracture and failure prevention; proceedings; 2v.
Conferences on Fracture and Strength of Solids (5th) and Physics & Chemistry of (2d: 2003: Sendai, Japan) Ed. by Kikuo Kishimoto et al. (Key engineering materials; vs.261-263)
Trans Tech Publications, ©2004 1714 p. $388.00 (pa)
The 271 papers (most are six pages in length) of these two volumes were presented at two conferences, the Fifth International Conference on Fracture and Strength of Solids and the Second International Conference on Physics and Chemistry of Fracture and Failure Prevention, held in October 2003 at the Tohoku U. in Sendai, Japan (where some of the editors teach and one of the organizing bodies is based). The main subject areas are fracture and fracture mechanics, dynamic behavior of solids, interfacial problems, electrical devices and systems, computational analyses and fracture simulations, and optimization. There were three invited lectures, on continuum analyses for intersonic and supersonic fracture, the size effects of hair-sized structures on torsion, and anisotropic and isotropic elasticity. Among the topics of individual papers are the effect of Columbic force on piezoelectric fracture, reliability analysis in flip chip package under thermal cycling, and implementation of inter-element model for crack growth simulation. Thirty countries were represented by the contributors. Distributed by Enfield.

TA417 2004-051812 0-7844-0742-8
NDT methods applied to fatigue reliability assessment of structures.
Title main entry. Ed. by Fatigue and Fracture Reliability Committee et al.
Am. Society of Civil Engineers, ©2004 159 p. $55.00 (pa)
Nine applications cases are collected here, demonstrating non- destructive test (NDT) methods in fatigue and fracture reliability assessment of structures. Applications look at problems such as steel girder bridges, airframe systems, welded connections, and bridge components (including concrete slabs) which were subjected to fracture failure. The book will be of use to instructors and graduate students in structural engineering courses, as well as structural engineers.

TA417 2004-4489 1-57117-046-4
Nondestructive testing handbook, 3d ed; v.5: Electromagnetic testing.
Title main entry. Technical ed. by Satish S. Udpa. Ed. by Patrick O. Moore.
Am.Soc. Nondestructive Testing, ©2004 524 p. $60.99
The 19 chapters of this clearly organized text, written by an international group of specialists, cover current techniques and methods with an emphasis on numerical techniques and standardization of measurements and designations (according to the Unified Numbering System). Initial chapters provide an introduction to electromagnetic testing, its history, principles, modeling, and probes. Other chapter topics include eddy current instrumentation, signal and image processing, remote field testing, magnetic flux leakage testing, microwave testing, primary metals applications, and aerospace applications of eddy current testing. The text is well illustrated with numerous diagrams and some b&w photos. A glossary is included. Upda teaches at Michigan State U. in East Lansing; Moore is with the American Society for Nondestructive Testing.

TA418 0-8247-4872-7
Surface modification and mechanisms; friction, stress, and reaction engineering.
Title main entry. Ed. by George E. Totten and Hong Liang.

Marcel Dekker, ©2004 756 p. $195.00
Totten (ASM International) and Liang (mechanical engineering, University of Alaska) compile studies on various residual stresses, reaction processes and mechanisms, heat treatment methods, plasma- based techniques, and modeling, simulation, and design strategies to offer an understanding of surface structural changes that occur during various engineering procedures. Early chapters examine the formation of temperature fields created as a result of friction during heat treatment, weld, and curing, and their role in residual stress formation. Later chapters overview reaction processes and mechanisms, and look at the effects of surface modification technologies and related mechanisms. Final chapters provide guidelines for designing for wear life and frictional performance. The book will be useful as a reference for material scientists and engineers, mechanical engineers, and tribologists.

TA418 1-86058-460-8
Total vehicle technology; finding the radical, implementing the practical; proceedings.
IMechE Automobile Division Southern Centre Conference on Total... (2004: Brighton, UK) Ed. by P.R.N. Childs and R.K. Stobart.
Professional Engineering Pub., ©2004 309 p. $378.00
Twenty-four papers, presented by Childs and Stobart (both of the U. of Sussex, UK), collectively draw together distinct areas of automotive design and engineering in order to encourage broaden the perspectives of designers frequently engaged in narrow, specialized activities. The papers individually address aspects of vehicle dynamics and control, control and design of the power train, vehicle safety, human-centered design, environmental vehicle propulsion, vehicle design, experimental techniques, and control systems technology. Distributed in the US by ASME.

TA418 2002-110636 1-56677-335-0
Corrosion science; a retrospective and current status in honor of Robert P. Frankenthal; proceedings.
Symposium on Corrosion Science...in Honor of Robert P. Frankenthal (2002: Philadelphia, PA) Ed. by G.S. Frankel et al. (Proceedings; v.2002-13.)
Electrochemical Society, ©2002 604 p. $89.00
This book contains papers presented at a May 2002 symposium on historical perspectives and the latest developments in corrosion science. Passivity and oxidation, localized corrosion, environmental cracking, coatings and inhibition, corrosion-related failure, and corrosion mechanisms and techniques are major themes. Some subjects examined are the kinetics of fireside chlorine corrosion in power plant boilers, surface energy as a variable in electrochemistry, passive film growth kinetics for iron and stainless steel, and the contribution of surface analysis to corrosion science. Other topics include etch tunnels in aluminum, hydrogen embrittlement, and pitting corrosion. There is no subject index.

TA455 2003-057732 0-87170-789-6
Characterization and failure analysis of plastics.
Title main entry.
ASM International, ©2003 482 p. $175.00
This book offers a collection of *ASM Handbook* articles on how engineering plastics are characterized in terms of properties and performance. It approaches the subject of characterization from a general standpoint of engineering design, materials selection, and failure analysis. The first section introduces fundamental elements of engineering plastics and covers composition, processing, and structural influences on their properties and performance. The second section contains articles on synthesizing and analyzing the requirements of a plastic part in terms of function, shape, process, and materials. Later sections cover the physical, chemical, and mechanical properties of plastics, and deal with failure analysis.

TA455 0-87170-801-9
Joining of advanced and specialty materials; proceedings.
Conference on Joining of Advanced and Specialty Materials (6th: 2003: Pittsburgh, Pennsylvania) Ed. by T.J. Lienert et al.
ASM International, ©2004 168 p. $110.00 (pa)
Papers from an October 2003 conference report on progress in methods for joining advanced and specialty materials to similar and dissimilar materials. A variety of topics are covered, including friction stir welding, solid-state processing, brazing and soldering, TLP/interfacial reactions, nondestructive testing of weldments, fusion welding processes, and micro-joining/lasers. Specific areas of research described include reactions between constituents of two molten nickel-base superalloys and ceramic materials, inspection of friction stir welds using arrays, theoretical models to describe properties of magnesium alloy

fusion welds, and bonding mechanisms in gold wire crescent bonding. There is no subject index.

TA455 2004-106078 0-7354-0188-8
Materials processing and design: Modeling, simulation and applications (NUMIFORM 2004); proceedings; 2v.
Int'l Conference on Numerical Methods in Industrial Forming Processes (8th: 2004: Columbus, Ohio) Ed. by Somnath Ghosh et al. (AIP conference proceedings; v.712)
American Institute of Physics, ©2004
2298 p. $375.00
The two massive volumes of this proceedings contain many of the papers presented at the 8th International Conference on Numerical Methods in Industrial Forming Processes, held at the Ohio State U. (where the editors teach and carry out their research in mechanical engineering) in June 2004. The papers are grouped according to topic, except for those presented as plenary and keynote lectures. Among the topics of the latter are CAE for injection molding, finite element procedures for forming processes, constitutive modelling of dissipative solids, and the modelling of polycrystalline microstructure in 3D. The major topics under which the remaining papers are grouped include polymer processing; composite materials,; bulk forming, rolling, extrusion, drawing, and forging; sheet metal forming; hydroforming and superplastic forming; casting, welding, and sintering; machining; non-conventional materials processing; modelling materials at micro- and nano-scales; and advances in numerical methods. Author index only.

TA455 0-87849-494-4
Nanodiffusion; diffusion in nanostructured materials.
Title main entry. Ed. by D.L. Beke. (Journal of Metastable and Nanocrystalline Materials; v.19, 2004)
Trans Tech Publications, ©2004 177 p.
$98.00 (pa)
The present state of the field of nanodiffusion is overviewed here. Basic aspects of the diffusion processes occurring at the nanoscale are treated, and results concerning diffusion kinetics in various types of technologically important nanomaterials are presented. Materials discussed include nanomagnetic materials, thin-films and multilayers for X-ray or neutron mirrors and for magneto-electronic applications, and semiconductor nanosystems. Some specific topics include diffusion mechanisms in grain boundaries, destratification mechanisms in coherent multilayers, and nanoscale effects in diffusion. Also published as *Journal of Metastable and Nanocrystalline Materials*, v.19; the book is distributed By Enfield.

TA645 0-471-59356-7
Linear and nonlinear structural mechanics.
Nayfeh, Ali H. and P. Frank Pai. (Wiley series in nonlinear science)
Wiley-Interscience, ©2004 746 p. $95.00
Bridging the gap between the practicing engineer and the applied mathematician, Nayfeh (engineering, Virginia Tech) and Pai (mechanical and aerospace engineering, University of Missouri-Columbia) present mathematically consistent derivations of structural theories, detail basic principles of linear and nonlinear structural mechanics, and show how to perform nonlinear structural analysis. The book is designed to be used as a reference for structural engineers as well as a graduate-level text.

TA654 2004-049718 0-7844-0725-8
Snow loads; a guide to the use and understanding of the snow load provisions of ASCE 7-02.
O'Rourke, Michael and Peter D. Wrenn.
Am. Society of Civil Engineers, ©2004 133 p.
$49.00 (pa)
Intended for practicing structural engineers and students, this guide describes the snow loading provisions in section 7.0 of the SEI/ASCE Standard 7-02, *Minimum design loads for buildings and other structures*, and illustrates the application of the provisions through at least one example for each of the 12 subsections. The worked examples include uniform snow load on a narrow gable roof, unbalanced snow load on a sawtooth roof, parapet wall drift, and sliding snow load on a commercial gable roof.

TA654 1-85312-706-X
Structures under shock and impact VIII; proceedings.
International Conference on Structures Under Shock and Impact [SUSI] (8th: 2004: Crete, Greece) Ed. by N. Jones et al.
WIT Press, ©2004 518 p. $298.00
A March 2004 conference brought together academic and industrial researchers investigating the shock and impact responses of structures and materials. Papers from the conference describe the results of theoretical, numerical, and experimental studies on structures, as well as investigations into material properties under dynamic loading conditions. Material is organized in sec-

tions on impact and blast loads, missile penetration and explosion, seismic engineering applications, energy absorbing studies, crashworthiness and impact biomechanics, behavior of structural concrete, behavior of composites, and material response to high rate loading. The book will be of interest to engineers from military, nuclear, aeronautical, transportation, and other backgrounds. There is no subject index. The US office of WIT Press is Computational Mechanics.

TA658 1-85312-984-4
Earthquake resistant engineering structures IV.
Title main entry. Ed. by G. Latini and C.A. Brebbia. (Advances in earthquake engineering series; 13)
WIT Press, ©2003 379 p. $211.00
Featuring recent research and specific case histories, this work contains a selection of contributions presented at the Fourth International Conference on Earthquake Resistant Engineering Structures, shedding light on developments in earthquake resistant design, reinforced concrete structures, bridges and building structures, ground motion and site effects, seismic design criteria, historical buildings and monuments, soil structure interactions, seismic isolation and control, soil dynamics, retrofit, steel structures, underground and lifeline structures, and risk reduction. Some specific topics examined include seismic behavior of rectangular concrete beams, earthquake risk to the Inca's architectural heritage, model properties of cracked reinforced concrete structures, and dynamic simulation on volcanic sediment transport. A few b&w photos are included. The US office of WIT Press is Computational Mechanics.

TA713 2004-041030 0-7844-0720-7
Thermal analysis, construction, and monitoring methods for frozen ground.
Title main entry. Ed. by Dave C. Esch.
Am. Society of Civil Engineers, ©2004 492 p. $195.00 (pa)
Esch, retired from the Alaska Department of Transportation, presents descriptions of methods used to control freezing and thawing of soils in engineered facilities, material on the calculations used to predict the thermal consequences and analyze the benefits of various approaches, and information on field monitoring methods for monitoring thermal performance. Ground thermometry, active freezing techniques, and permafrost thaw beneath buried pipelines are examined. Much of the material is drawn from *Thermal Design Considerations in Frozen Ground Engineering*, ASCE, 1985. Four new chapters cover recent developments in the field and offer an overview of the forecasts and anticipated consequences of climate change on cold regions.

TA775 2004-051903 0-7844-0743-6
Current practices and future trends in deep foundations.
Title main entry. Ed. by Jerry A. DiMaggio and Mohamad H. Hussein. (Geotechnical special publication; no.125)
Am. Society of Civil Engineers, ©2004 475 p. $69.00 (pa)
In this collection of new research and classic papers in the construction of deep foundations, contributors examine dealing with difficult soils, designing to accommodate set-up, working with current and future construction of cast-in-place deep foundations and micropiles, testing for safety, and considering seismic and dynamic measurements. Sections include lists of publications and reports, and a list of theses supervised by Dr. George Gobel (U. of Colorado), to whom this volume is dedicated.

TA800 90-5809-669-6
North American tunneling; proceedings. (CD-ROM included)
The North American Tunneling Conference (2004: Atlanta, Georgia) Ed. by Levent Ozdemir.
A.A. Balkema, ©2004 614 p. $149.00
This book/CD-ROM package contains papers from an April 2004 conference on the management of underground projects, public policy and underground projects, advances in technology, and case studies. Papers examine management issues such as risk allocation and controlling costs, and discuss issues related to security infrastructure and key national assets, financing of underground projects, and transit oriented development. New advances in technology are described in areas of mechanical tunneling, nonmechanized construction, and analysis and design of underground construction, and case studies address specialized urban construction, conventional underground construction, and machine mining in soft ground, hard rock, and mixed- face conditions. The book will be of interest to all those involved in infrastructure, tunneling, and underground construction. There is no subject index. The book is distributed in the US by Ashgate.

TA1005 2004-046300 0-7844-0730-4
Applications of advanced technologies in transportation engineering; proceedings.

Int'l Conference on App. of Advanced Technologies in Transportation Engineering (8th: 2004: Beijing, China) Ed. by Kumares C. Sinha.
Am. Society of Civil Engineers, ©2004 683 p. $125.00 (pa)
The 125 papers explore technical innovations and analytic tools for improving transportation infrastructure and providing more efficient transportation operations. Many of the case studies are from China. Among the overall themes are intelligent transportation systems, traffic flow theory and predictions, network modeling, traveler information systems, advanced technologies for road bridges, traffic control and management, analyzing and evaluating road performance, highway materials and testing, highway operations, and public transportation. Engineers, administrators, and researchers may find useful information.

TA1634 2004-101930 0-7695-2127-4
Computer and robot vision; proceedings.
Canadian Conference on Computer and Robot Vision (1st: 2004: London, Ontario)
Computer Society Press, ©2004 510 p. $191.00 (pa)
This collection of 38 papers and 29 posters from the May 2004 conference reports on research and development activities in computer vision, robot vision, image processing, medical imaging, and pattern recognition. The papers examine such subjects as the extension of statistical face detection to face tracking, Bayesian segmentation supported by neighborhood configurations, and robust estimation of camera rotation, translation, and focal length. The poster topics include the limits of second generation watermarks, ANN-based visibility prediction for camera placement in vision metrology, and the application of augmented reality to industrial tele-training. No subject index is provided.

TA1634 2004-106484 0-7695-2179-7
Coordinated and multiple views in exploratory visualization (CMV 2004); proceedings.
International Conference on Coordinated & Multiple Views in Exploratory Visualization (2004: London, England) Ed. by Jonathan Roberts.
Computer Society Press, ©2004 130 p. $156.00 (pa)
Papers from a July 2004 conference discuss the state of the art and future opportunities in the field, in the areas of visualization environments and coordination, tight coupling, multiforms and techniques, and applications of coordinated and multiple views. Topics explored include coordinating views for data visualization and algorithmic profiling, integrating UML views and visual cues, and supporting protocol-based care in medicine via multiple coordinated views. Other subjects are exploiting multiple views to support visual exploration and mining, and parallel coordinates for exploring properties of subsets. There is no subject index.

TA1637 2004-106470 0-7695-2178-9
Computer graphics, imaging and visualization; proceedings.
Computer Graphics, Imaging and Visualization (CGiV04) (2004: Penang, Malaysia) Ed. by Ebad Banissi et al.
Computer Society Press, ©2004 276 p. $185.00 (pa)
A July 2004 conference explored the integration of science and art through the medium of computer technology. Papers from the conference shed light on the latest work in computer graphics and imaging, reporting on research in areas such as visual inventory inspection using optical character recognition, adaptive parameter selection for improved fuzzy image enhancement, a face detection system based on feature-based chrominance color information, and food handling and packaging using computer vision. Results are also presented on subjects including a unified framework for user-controlled simplification, fuzzy set geometric modeling, and image subtraction for real-time moving object extraction. There is no subject index.

TA1637 2004-043570 0-8493-1900-5
Practical handbook on image processing for scientific and technical applications, 2d ed.
Jähne, Bernd.
CRC Pr., ©2004 610 p. $119.95
This handbook explains basic and advanced concepts of image processing, provides a collection of algorithms, and demonstrates the algorithms with real-world scientific and technical applications. Updating this second edition to keep current with progress in the field of image processing, Jähne (University of Heidelberg) offers expanded material on applications in areas such as the automotive industry and quality inspection, an in-depth analysis of statistics and random variables for image processing, and a new chapter on classification. Organized according to tasks, each chapter includes a summary, an outline of background, practical tips, and numerous b&w illustrations. A section of color illustrations is also included. Although a mathematical appendix is provided for review, readers should be

familiar with matrix algebra and the Fourier transform.

TA1750 2004-044059 0-471-21573-2
Lightwave technology; components and devices. (CD-ROM included)
Agrawal, Govind P.
Wiley-Interscience, ©2004 427 p. $89.95
This first of two volumes conceived together as an up-to-date account of all major aspects of lightwave technology (including lasers, optical fibers, and nonlinear optics) describes a number of silica- and semiconductor-based optical devices. Agrawal (Institute of Optics, U. of Rochester) emphasizes physical understanding of the devices, but does address some engineering aspects. He covers devices made with optical fiber and planar waveguides, as well as those that are needed for modern lightwave systems. Each chapter includes selected exercise problems, while the CD-ROM contains additional problems and a software package useful for solving problems.

TA4418 3-527-30659-5
Nanomaterials by severe plastic deformation; proceedings.
Conference on Nanomaterials by Severe Plastic Deformation (2002: Vienna, Austria) Ed. by Michael Zehetbauer and Ruslan Z. Valiev.
Wiley-VCH, ©2004 840 p. $325.00
These proceedings of a December 2002 conference review recent research in nanomaterials and severe plastic deformation (SPD). Themes span the spectrum from general physical properties of nanostructured materials to the unique properties of SPD nanomaterials, the modeling of properties and of SPD production of nanocrystalline materials, the peculiarities of nanostructures evolving during SPD, X-ray diffraction, the thermostability of nanocrystalline materials, and current and future applications of nanomaterials from SPD. More specifically, topics include mechanically activated powder metallurgy, twist extrusion, atomistic modeling of strength of nanocrystalline metals, the influence of type and path deformation on microstructural evolution during SPD, diffusion in nanocrystalline metals and alloys, titanium alloys, and superplastic forming capability.

HYDRAULIC ENGINEERING

TC540 90-5809-632-7
Hydraulics of dams and river structures; proceedings. (CD-ROM included)
International Conference on Hydraulics of Dams and River Structures (2004: Tehran, Iran) Ed. by Farhad Yazdandoost and Jalal Attari.
A.A. Balkema, ©2004 449 p. $149.00
Papers collected here, presented at an April 2004 conference, will serve both the research and professional communities dealing with development issues within the water sector. The conference brought together researchers and practitioners to exchange views and experiences on hydraulics of structures associated with rivers and dams. Papers on advances related to hydraulic structures examine hydrodynamic forces, intakes and outlets, energy dissipators, reservoir sedimentation, and stepped spillways. Material on river structures reports on work in sedimentation around structures, numerical approaches in hydrodynamics of river flow, river response to hydraulic structures, and hydroinformatic applications. The book is distributed in the US by Ashgate.

ENVIRONMENTAL TECHNOLOGY

TD171 2004-007135 0-471-21599-6
Geoenvironmental engineering; site remediation, waste containment, and emerging waste management technologies.
Sharma, Hari D. and Krishna R. Reddy.
John Wiley & Sons, ©2004 968 p. $195.00
Sharma, a consultant in geoenvironmental and geotechnical engineering, and Reddy (civil and environmental engineering, University of Illinois) outline environmental laws and regulations, provide geochemical and geotechnical background, and explain fundamentals of groundwater flow and contaminant transport in this resource for students and professionals in environmental, geotechnical, and civil engineering and for environmental regulators and administrators at local, state, and federal levels. After chemical, geochemical, and geotechnical background, the book examines sources of contamination, risk assessment, and remediation technologies, then presents information on the design and evaluation of landfills and surface impoundments. Final chapters describe emerging technologies such as beneficial uses of closed landfills, recycling bioreactors, and in- situ capping of subaquatic waste sediments. Example problems, cases, and questions are included.

TD193 0-8247-5471-9
Field sampling; principles and practices in environmental analysis.
Conklin, Alfred R.
Marcel Dekker, ©2004 355 p. $135.00
Conklin (agriculture and chemistry, Wilmington College) outlines procedures for taking air, water, soil, biological, and other samples that will yield a representative and accurate measurement of the conditions and concentrations of components present in a field. The practical textbook explains the importance of developing a field sampling plan and keeping a project notebook, describes geostatistical and GPS tools, suggests protocols for transporting and storing the samples, and overviews the basic principles of analytical methods.

TD195 2003-61568 0-7190-6558-5
Climate change and the oil industry; common problem, varying strategies.
Skjrs<ae>th, Jon Birger and Tora Skodvin. (Issues in environmental politics)
Manchester U. Pr., ©2003 246 p. $74.95
Instead of studying the effectiveness of policy by analyzing the chain of consequences flowing from it to the corporations that are its target, the researchers<—>two political scientists based at Norway's Fridtjof Nansen Institute and the U. of Oslo<—>chose a bottoms-up approach: They looked directly at oil industry decision-making related to climate change, and why corporations in similar business contexts choose very different strategies to confront a common problem. They interviewed officials with ExxonMobil, Shell, and Statoil as well as representatives of the environmental movement, governments, and other business organizations. Of interest to students and researchers interested in national and international politics and business environmental management. Distributed by Palgrave.

TD223 1-58321-311-2
Water fluoridation principles and practices, 5th ed.
Title main entry. Ed. by American Water Works Association. (Manual of water supply practices; M4)
State U. of New York Pr., ©2004 89 p. $85.00 (pa)
This manual presents guidelines to assist decision makers in planning fluoridation installation, engineers in designing them, and water utility personnel in operating them. This fifth edition incorporates updates in areas such as health effects, state and federal regulations, and defluoridation treatment. Chapters cover history, theory, and chemicals, fluoridation system planning, equipment and installation, operation and maintenance, and defluoridation.

TD380 1-58321-320-1
Field measurement methods for arsenic in drinking water.
McNeill, Laurie S. et al.
American Water Works Assn., ©2004 74 p. $125.00 (pa)
In response to the strengthening of EPA regulations, the American Water Works Association recently developed and tested a relatively inexpensive field method for quantifying arsenic levels in drinking water samples. The method allows water utilities to measure arsenic on-site, rather than sending samples to a laboratory for analysis. This report describes the methods and materials needed for field- testing arsenic levels and gives the results of preliminary tests of the procedure at various water utilities. The volume is not indexed.

TD430 2004-051813 0-7844-0741-X
Advances in water and wastewater treatment.
Title main entry. (ASCE book series on environmental and water resources engineering)
Am. Society of Civil Engineers, ©2004 585 p. $110.00 (pa)
This book provides information on the application of innovative techniques for water and wastewater treatment, with an emphasis on pollutant and pathogen removal. Described in detail are the practice and principles of wastewater treatment in areas such as sustainable development, nutrient removal, bioplastics production, biosolid digestion, pathogen reduction, metal leaching, surface and subsurface constructed wetland, and wastewater reclamation. The audience for the book includes environmental engineers and scientists involved in the practice of environmental engineering.

TD434 1-58321-321-X
Emergency power source planning for water and wastewater.
Title main entry. Ed. by Ellermeier, Fred J. et al.
American Water Works Assn., ©2004 142 p. $90.00 (pa)
In response to recent, large power outages in the United States and the threat they pose to water services, this guide reviews key factors for water utilities to consider when performing an electrical power reliability assessment and designing a fixed-mount engine generator instal-

lation. A sample scenario demonstrates the potential compounding effects a failure in the commercial power supply has on regional wastewater treatment systems, local water treatment systems, and the surrounding community. The appendices contain a standby power information checklist, scenario planning worksheets, and four case studies. The authors work for Black & Veatch Water Americas Division. No index is provided.

TD442 2004-046179 1-58321-213-2
Integrated membrane systems.
Title main entry. Ed. by Jan C. Schippers et al.
American Water Works Assn., ©2004 705 p. $205.00
This report evaluates the use of integrated membrane systems (IMS) for the control of microbials and disinfection by-product precursors, based on research undertaken in California, Missouri, Florida, and Holland. In addition to system productivity and fouling assessment, research focuses on disinfection assessment, synthetic organic chemical removal, biological stability, corrosivity, and costs, as well as coagulation-sedimentation filtration, flat-sheet cell testing, and membrane film characterization. A final chapter provides guidelines for conducting further IMS pilot studies.

TD491 1-58321-326-0
Optimizing corrosion control in water distribution systems.
Title main entry. Ed. by Steven J. Duranceau et al.
American Water Works Assn., ©2004 271 p. $205.00 (pa)
This report describes research conducted to develop and demonstrate an on-line corrosion control monitoring method using a multi-element sensor based on electrochemical techniques, designed for monitoring corrosion processes in potable water distribution systems. The project described here sought to develop and test on-line, real-time electrochemical sensors for monitoring corrosivity in water distribution systems, use real-time corrosion sensors to screen corrosion inhibitors for use in treatment of drinking water, and demonstrate the use of electrochemical noise information for corrosion control applications in the potable water industry. The report lacks a subject index.

TD491 2003-060084 1-58321-292-2
Problem organisms in water; identification and treatment, 3d ed.
Title main entry. (AWWA manual; M7)
American Water Works Assn., ©2004 145 p. $95.00 (pa)
This revision of the 1995 American Water Works Association (AWWA) manual of water supply practices covers the biology, ecology, and control of major types of aquatic pests. Appendices include results of the 1989 AWWA survey on nuisance organisms <—>which prompted this iteration, suggestions for optimizing conventional water treatment, and color plates of such undesirables as disease-causing protozoa and filter-clogging algae. The 1966 edition by Ingram and Bartsch appeared under the title, *Animals Associated with Potable Water Supplies*.

TD796 0-7918-3736-X
North American waste to energy; proceedings.
North American Waste to Energy Conference (12th: 2004: Savannah, GA).
ASME, ©2004 283 p. $120.00 (pa)
Sponsored by the Integrated Waste Services Association, the American Society of Mechanical Engineers, and the Solid Waste Association of North America, the May 2004 conference that gave rise to this collection of 27 papers explored waste to energy as "an environmentally sound alternative," corrosion mitigation for waste combustors, waste to energy facility projects and innovations, and new technology for waste to energy processes. In addition to the papers, 7 speaker and panel abstracts are included, discussing such topics as the emergence of conversion technologies in California, accrediting greenhouse gas credits for marketing, and practical applications for ash reuse.

BUILDING CONSTRUCTION

TH439 2003-064271 0-88173-321-0
Handbook of facility assessment.
Piper, James.
Fairmont Pr., ©2004 452 p. $135.00
Piper, an engineer who has performed assessments on educational, commercial, industrial, and religious facilities, walks through a formal process to identify, evaluate, and report the condition of a facility's physical plant. Separate chapters provide guidelines and forms for recording problems in every component of a building's mechanical systems, electrical systems, shell, site, interior structure and finishes, and transportation systems. The author lists the most common defects found in various types of roofs and walls, floors and ceilings, heating and cooling systems, piping and restrooms, transformers, lighting, elevators, and outdoor recreational facilities.

TH2235 2004-047720 0-8031-3475-4
Building facade maintenance, repair, and inspection.
Symposium on Building Facade Maintenance, Repair, and Inspection (2002: Norfolk, Va.) Ed. by Jeffrey L. Erdly and Thomas A. Schwartz. (ASTM special technical publication; 1444)
ASTM International, ©2004 326 p. $99.00
When buildings loose face, people down below can get hurt, but only eight US cities have established any system for inspecting building facades, and those vary widely in thoroughness, effectiveness, and enforcement. The symposium was called to parallel the Society's Standard E 2270 *Standard Practice for Periodic Inspection of Building Facades for Unsafe Conditions*, approved in the spring of 2003. The two dozen papers cover the purpose and background to facade ordinances, addressing historic buildings, investigation and data collection techniques, material and repair techniques, and miscellaneous matters.

TH2275 2003-059929 0-393-73121-9
Window systems for high-performance buildings.
Title main entry. Ed. by John Carmody et al.
W.W. Norton, ©2004 400 p. $50.00
Carmody (Center for Sustainable Building Research, University of Minnesota) provides information and performance data on the energy efficiency, interior environment, and technical considerations that drive window design decisions. He guides designers through general design issues relating to windows, and discusses conventional and emerging window technologies. A decision-making process for design and selection of windows is provided, which shows the impact of many design variables on energy and indoor environment performance in offices and schools. Also included are case studies of recent examples of window and facade design in commercial buildings. B&w and color photos and plans are included.

TH6012 2003-062363 0-88173-449-7
Information technology for energy managers.
Capehart, Barney L.
Fairmont Pr., ©2004 426 p. $145.00
Capehart (industrial and systems engineering, University of Florida) teaches energy managers basic concepts and principles of information technology (IT) and shows them how to purchase, install, and operate complex, Web-based energy information and control systems. The book addresses concepts the typical energy or facility manager might need, with emphasis on computer networking, use of facility operation databases, and sharing of data using the Web and the TCP/IP communications protocol. After an introduction to IT for energy managers, chapters are arranged in sections on areas such as data collection and input, network security, relational database choices for EIS and ECS systems, and techniques for utility data Web page design. The book is co-published by Marcel Dekker, Inc.

TH7684 2004-006447 0-471-09532-X
Ventilation for control of the work environment, 2d ed.
Burgess, William A. et al.
John Wiley & Sons, ©2004 424 p. $99.95
This work is presented as an explanatory companion to the American Conference of Governmental Industrial Hygienists *Industrial Ventilation Manual* and cannot be understood without it. Burgess (emeritus, occupational health engineering, Harvard School of Public Health), Ellenbecker (industrial hygiene, U. of Massachusetts Lowell), and Treitman (vice president, Softpro Inc., a software consulting company) aim to provide the rationale behind the manual and provide a framework for its use. Frequently referring to figures and tables contained in the manual, the authors describe the theory behind principals of airflow, airflow measurement techniques, general exhaust ventilation, hood design, chemical laboratory ventilation, design of single- and multi-hood systems, fans and blowers, air cleaning systems, replacement-air systems, quantification of hood performance, and application of computational fluid dynamics to ventilation system design.

MECHANICAL ENGINEERING & MACHINERY

TJ151 0-8311-2727-9
Machinery's handbook, 27th ed. (CD-ROM included).
Title main entry.
Industrial Press, ©2004 2694 p. $149.95
HHHH The new edition of this standard reference for the metalworking industry, which is cited in *Guide to Reference Books*, is packaged as a thumb-indexed, small-format book (5x7.25<">), with an included CD-ROM. Presenting a range of basic and advanced material, this "toolbox" provides industry fundamentals and standards for mechanical and manufacturing engineers, designers, draftsmen, toolmakers, and machinists. This edition offers a more user-friendly organization, plus more math coverage, from fractions through

engineering economics, and new or revised materials on topics including cutting tools, screw threads, symbols and abbreviations, disc springs, properties and materials, and sheet metal. The CD-ROM contains interactive math problems, plus the contents of the book in Adobe Acrobat PDF.

TJ163 2003-062834 0-7918-0208-6
Industrial energy systems; analysis, optimization, and control.
Putman, Richard E.
ASME, ©2004 298 p. $110.00
This book details industrial energy management systems, a framework which enables management, systems analysts, and performance engineers to develop and apply an operating strategy for the on-line optimization and control of energy systems in industrial plants. Techniques are described for equipment selection and flowsheet adjustments to reduce plant energy consumption without affecting the productive capacity of the plant. Applications case studies and mathematical appendices are included. Putnam was a pioneer in the field of industrial energy management systems.

TJ260 2001-088659 1-85312-893-7
Heat and fluid flow in microscale and nanoscale structures.
Title main entry. Ed. by M. Faghri and B. Sundén. (International series on developments in heat transfer, no.13)
WIT Press, ©2004 374 p. $187.00
Faghri (mechanical engineering, University of Rhode Island) and Sundén (heat transfer, Lund Institute of Technology, Sweden) present the latest work in heat transfer and fluid flow in micro- and nanoscale structures. Chapters follow a unified outline and presentation to aid accessibility. Coverage includes miniature and microscale energy systems, nanostructures for thermoelectric energy, heat transport in superlattices and nanowires, thermomechanical formation and thermal detection of polymer nanostructures, two-phase flow microstructures in thin geometries, and numerical issues related to modeling and numerical implementations of flow and heat transfer at micro- and nanoscales. The book will be of interest to graduate researchers and engineers in industry and consultancy. There is no subject index. The US office of WIT Press is Computational Mechanics.

TJ778 0-632-06434-X
Gas turbine performance, 2d ed.
Walsh, Philip P. and Paul Fletcher.
ASME, ©2004 646 p. $120.00
"Performance is the end product that a gas turbine company cells," notes Fletcher (of Rolls-Royce Industrial & Marine Gas Turbines Ltd.), arguing that engineers from all disciplines, as well as marketing staff, must understand the fundamentals of performance. Primarily addressing the engineers, he combines explanations of the fundamentals of performance for all gas turbine configurations and applications with a wealth of reference material, including a statistical database and a list of formulae he hopes will be useful to even the experienced gas turbine engineer.

TJ808 2004-41370 0-8493-2031-3
Renewable energy systems; design and analysis with induction generators.
Godoy Sim<~o>es, M. and Felix A. Farret. (Power electronics and applications series)
CRC Pr., ©2004 358 p. $99.95
Until the 1960s, abundant fossil fuels seemed to make the induction generator unnecessary. However, the need for distributed generation and renewable energy have brought it back. Sim<~o>es and Farret describe the basics of renewable energy and electric generation, the steady state and transient models of the induction generator, and the self-excited induction generator. They explain construction features, power electronics for interfacing induction generators, scalar, vector, and optimized controls, simulation tools, and the economics of induction generation-based renewable systems. Appendices include an introduction to fuzzy logic and statements in C and Pascal for a simulation of a self-excited induction generator.

TJ930 2002-116505 1-57590-148-X
Fusion-bonded epoxy (FBE); a foundation for pipeline corrosion protection.
Kehr, J. Alan.
Natl/Assn/Corrosion/Engrs, ©2003 587 p. $148.00 (pa)
This reference provides information on the uses and processes of fusion-bonded epoxy (FBE) pipecoating materials and their place in pipeline corrosion mitigation. Illustrated with color photos on almost every page, the book covers the chemistry of FBE and different types of FBE coatings, including multilayer FBE external pipeline coatings, three-layer FBE-polyolefin coatings, internal FBE pipe linings, custom and pipeline-rehabilitation coatings, and joint coatings and linings. FBE application processes, quality assurance, pipe handling and installation, cathodic

protection with FBE-based coating systems, and coating specifications and standards are some other areas examined. Appendices of standards, abbreviations, and acronyms are included.

TJ1180 2002-116421 1-85312-990-9
Laser metrology and machine performance VI; proceedings.
Conference on Laser Metrology, Machine Tool, CMM, and Robot Performance (6th: 2003: Huddersfield, UK) Ed. by D.G. Ford.
WIT Press, ©2003 590 p. $286.00
Fifty papers from the 2003 conference report on cutting-edge technology and techniques for assessing the performance of machine tools and measuring machines. Work on the enhancement of machine performance along with the latest developments in calibration, certification, and standardization are also presented. Topics include energy and temperature analysis in grinding, curve fitting with arc spline for NC tool path generation, form evaluation algorithms in coordinate metrology, active vibration control of machine tool structures, and modeling the dynamic behavior of a ball-screw system. The US office of WIT Press is Computational Mechanics.

TJ1280 2004-002376 0-8155-1490-5
Tribology of abrasive machining processes.
Title main entry. Ed. by Ioan D. Marinescu et al.
William Andrew Pub., ©2004 724 p. $145.00
Marinescu (Precision Micro-Machining Center, University of Toledo) considers the processes of the abrasive machining system and the tribological factors which control the efficiency and quality of these processes. Principles of tribology are used to explain how kinematic factors affect the size, shape, and variability of the material being removed, and how they influence the wear of the abrasive tool, the process forces and energy, and the surface roughness and integrity of the workpiece. With an emphasis on grinding, chapters cover areas such as kinematic models of abrasive contacts, contact mechanics, fluid delivery, and tribochemistry of abrasive machining. Accessible to technicians, graduate students, and undergraduates.

TJ1330 2004-004400 1-56990-359-X
Modern machine shop's guide to threads, threading, and threaded fasteners.
Chapman, Woodrow W.
Hanser/Gardner Pub., ©2004 596 p. $46.95
This third and final volume of abridged editions extracted from *Modern machine shop's handbook for the metalworking industries* features enlarged tables and diagrams for the production and use of fasteners in engineering, general manufacturing, and the aircraft industry. The handbook lists specifications for unified screw threads, bolted joints, tap thread limits, thread rolling, single point threading, nut and washer dimensions, socket head screws, and blind rivets.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK2514 0-8247-4105-6
Handbook of electric motors, 2d rev.ed.
Title main entry. Ed. by Hamid A. Toliyat and Gerald B. Kliman. (Electrical engineering and electronics; 120)
Marcel Dekker, ©2004 805 p. $235.00
For this second edition of a handbook for electrical engineers, Toliyat (electrical engineering, Texas A&M University) and Kliman (electrical engineering, Rensselaer Polytechnic Institute) have added new material on high-horsepower motor applications and special-purpose motors, and on recent advances in tools for motor analysis and design, benefits and drawbacks of electronic controls, new methods in failure detection, and the increasing application of microprocessor-based relays and circuit breaker controls. Coverage encompasses controls, protection, environmental and mechanical considerations, reliability, and other topics associated with electric motors. The book will be of use to engineers concerned with the design, selection, specifications, purchasing, testing methods, and maintenance of electric motors.

TK2551 0-8247-5653-3
Transformer engineering; design and practice.
Kulkarni, S.V. and S.A. Khaparde. (Power engineering)
Marcel Dekker, ©2004 476 p. $150.00
Kulkarni and Khaparde (both of the Department of Electrical Engineering, Indian Institute of Technology, India) incorporate theory and application of modern computational techniques in their treatment of transformer engineering. They emphasize aspects they feel have been neglected in other works, including magnetizing asymmetry, zero- sequence reactance characteristics, stray looses and related theory of eddy currents, short-circuit forces and withstand, part winding resonance phenomena, and insulation design. Other topics covered in the text's 12 chapters include surge phenomena, cooling systems, structural designs, and special transformers.

TK2931 0-7918-4165-0
Fuel cell science, engineering and technology; proceedings.
International Conference on Fuel Cell Science, Engineering and Technology (2d: 2004: Rochester, NY) Ed. by R.K. Shah and S.G. Kandlikar.
ASME, ©2004 693 p. $220.00 (pa)
Papers from a June 2004 conference disseminate the latest advances in fuel cell systems from the international community. Material is organized in sections on areas such as water transport phenomena in fuel cells, computational modeling and analysis of PEM fuel cells, proton exchange membrane fuel cell components, modeling and analysis of solid oxide fuel cell (SOFC) stacks and systems, and power conditions. Work in SOFC hybrid systems, carbon and molten carbon fuel cells, and direct methanol fuel cells is described. Some specific topics include marine applications of fuel cell technology, high- performance polymer electrolyte membrane fuel cell electrodes, numerical modeling of a disk shape planar SOFC, and direct conversion of coal-derived carbon in fuel cells. There is no subject index.

TK5101 2003-117149 0-7695-2096-0
Communication networks and services research (CNSR 2004); proceedings.
Conference on Communication Networks and Services Research (2d: 2004: Fredericton, Canada) Ed. by Ali A. Ghorbani.
Computer Society Press, ©2004 364 p. $177.00 (pa)
This proceedings of the May 2004 conference on communication networks and services presents new developments in mobile systems, architectures for combined voice and data sources, algorithms and protocols, communication technologies, and web information retrieval. Topics of the 41 papers include the practical design of single feed truncated corner microstrip antenna, a framework for context-aware content adaptation and delivery, a recursive EM algorithm for finite mixture models, network intrusion detection using a competitive learning neural network, and a topic sharing infrastructure for weblog networks. Eight posters conclude the volume. No subject index is provided.

TK5102 2003-024763 1-903996-35-X
Communicating systems & networks; traffic & performance.
Fiche, Georges and Gérard Hébuterne. (Innovative technology series. Information systems and networks)
Kogan Page Science, ©2004 528 p. $145.00
Fiche, a researcher in performance and telecommunication systems, and Hébuterne (French National Institute of Telecommunications) explain the range of analytical tools and techniques used to ensure traffic performance and quality of service of telecommunication systems and networks, providing a methodology that can be applied to all phases of development, from conception to exploitation. Architectures and functions from the point of view of performance are described, and the basic concepts of teletraffic are introduced. This is followed by definitions of quality of service and normalization and descriptions of appropriate tools (such as probability theory and statistics) and techniques (such as reliability and queueing theory) of evaluation. These tools and techniques are demonstrated through the use of models and simulation techniques in industrial environments. Distributed by Stylus.

TK5103 1-932266-91-7
Managing and securing a Cisco structured wireless-aware network.
Wall, David et al.
Syngress Media, Inc., ©2004 469 p. $59.95 (pa)
This guide offers the foundational information needed in the design and deployment of good Cisco SWAN installations. It provides instructions to help configure a network, manage authentication, and implement special features. Chapters focus on topics like: wired versus wireless, designing wireless aware LANs, WLAN roaming, IP multicast, guest network access, implementation, security, rouge AP detection, wireless LAN VLANs, and quality of service.

TK5103 2003-102482 1-55752-746-6
Optical fiber communcations conference; postconference digest.
Conference on Optical Fiber Communication (2003: Atlanta, Ga.) (Trends in optics and photonics series; v.86)
Optical Society of America, ©2003 802 p. $160.00 (pa)
Papers from a recent conference describe work in fibers and propagation, amplifiers and lasers, grating, photonic band gap and signal conditioning, optoelectronic devices, and optical switching, wavelength separation, and planar waveguide devices. Some specific subjects examined are tunable dispersion compensation, optical regeneration, fiber lasers, polymer waveguides, optical network economics and planning, and design

and characterization of Bragg gratings. Other subjects are analog distribution, novel materials, and measurement and modeling technologies. There is no subject index.

TK5104 2003-064927 0-8058-4962-9
Communications satellites; global change agents. Title main entry. Ed. by Joseph N. Pelton et al. (Telecommunications)
Lawrence Erlbaum, ©2004 387 p. $39.95(pa)
Fifteen interdisciplinary essays provide a broad overview of the world of satellite communications. Presented by Pelton (director, Space and Advanced Communication Research Institute, George Washington U.), Oslund (telecommunication, George Washington U.), and Marshall (a former president of a global satellite broadcast services company) the essays cover technology, history, politics, economics, media issues, societal impacts, and future trends. Largely synoptic in approach, the essays address such individual topics as the geopolitical institutions of satellite communications; recent developments in launch vehicles; satellites and the Internet; the relationship between commercial and military uses of space communications; and satellites, tele-education, and tele-health.

TK5105 0-8247-5321-6
High-performance backbone network technology. Title main entry. Ed. by Naoaki Yamanaka. (Optical engineering)
Marcel Dekker, ©2004 1046 p. $195.00
Reprinting 107 papers published in *IEICE Transactions on Communications* between 1997 and 2002, this volume describes sophisticated traffic control techniques and advanced hardware technologies being developed to realize high-throughput and high- quality backbone networks. The studies address ATM switch architectures, ATM and IP integration issues, broadband networks, traffic control, performance, and switching devices for photonic networks. Topics include a modular terabit ATM switch fabric architecture, an algorithm for jitter control frame-based queuing, optical code-based label swapping for photonic routing, controlling end-to-end TCP flow using ABR rate information, and temperature insensitive micromachined GaAlAs/GaAs vertical cavity wavelength filters.

TK5105 2004-106471 0-7695-2184-3
Electronic contracting (WEC 2004); proceedings. IEEE International Workshop on Electronic Contracting (2004: San Diego, CA). Ed. by Boualem Benatallah et al.
Computer Society Press, ©2004 79 p. $149.00 (pa)
Papers from a July 2004 workshop shed light on technologies and future trends in electronic contracting. The Ricardian contract, the monitoring of contractual service level agreements, and rules of engagement for automated negotiation are some topics covered. Other subjects include performance monitoring of service-level agreements for utility computing using event calculus, a digital licensing model for the exchange of learning objects in a federated environment, bilateral negotiation decisions with uncertain dynamic outside options, and design and implementation of a contract monitoring facility. There is no subject index.

TK6590 2003-544551 0-8194-4473-1
Laser radar technology and applications VII; proceedings..
Conference on Laser Technology and Applications (7th: 2002: Orlando, FL). Ed. by Gary W. Kamerman. (SPIE proceedings series; v.4723)
SPIE, ©2002 202 p. $70.00 (pa)
Twenty papers from the April 2002 conference report on progress related to scannerless imaging systems, laser imaging through turbid and scattering media, lasers and components, laser velocimetry and vibrometry, and lidar systems. Topics include an obstacle warning system for helicopters, speckle propagation through atmospheric turbulence, wide-angle beam steering for infrared countermeasure applications, a comparison of spread spectrum coherent and direct detection DIAL systems, and wind profiling by lidar and video imagery of clouds and aerosols. No subject index is provided.

TK7835 2004-101881 1-56677-412-8
Low temperature electronics and low temperature cofired ceramic based electronic devices; proceedings, v.2003-27.
International Symposium on [Title] (7th: 2003: Orlando, FL) Ed. by C.L. Claeys et al.
Electrochemical Society, ©2004 318 p. $82.00
Papers from an October 2003 symposium examine current developments in electronic devices and improved system properties, focusing on the use of cryogenic electronics for space applications and microelectronic devices for consumer applications. Thermoelectric measurements, low-temperature performance of ultimate Si-based MOSFETS, and thermal management using low-temperature cofire ceramic (LTCC) are some ar-

eas discussed. Other topics are interfacial reactions in LTCC materials, lead-free dielectric and magnetic materials for integrated passives, and miniaturized bandpass filters for LTCC applications.

TK7836 1-55899-721-0
Materials, integration and packaging issues for high-frequency devices; proceedings.
Symposium on Materials, Integration and Packaging Issues for High-Frequency Devices (2003: Boston, MA) Ed. by P. Muralt et al. (Materials Research Society symposium proceedings; v.783)
Materials Research Society, ©2004 232 p. $91.00
A December 2003 symposium brought together scientists involved in the processing, characterization, packaging, device design, and applications of passive components for high-frequency devices. Selected papers from the symposium examine issues of materials technology that are key factors for the advancement of high-frequency devices with applications in areas such as mobile phones. The main topics discussed are improvements in low-temperature co-fired ceramics, microstructure-property relationships in perovskites for new materials compositions, tunable ferroelectrics allowing low-cost solutions for frequency tuning and phase shifters, new integration platforms and packaging concepts, embedded capacitors, bulk acoustic wave resonators, and above chip integration.

TK7874 3-527-30483-5
Analysis and design of low-voltage power systems; an engineer's field guide. (CD-ROM included)
Kasikci, Ismail.
Wiley-VCH, ©2004 387 p. $115.00
After briefly dealing with the theory of low-voltage systems and relevant regulations and standards, Kasickci (Associated Editor of the *International Journal of Power and Energy Systems* and a lecturer at the U. of Applied Sciences of Heilbronn, Germany) provides 50 fully worked examples of the calculation, dimensioning, and evaluation of low voltage power systems within his discussion of the engineering aspects of planning low-voltage power systems. Among other topics, chapters cover transformers, asynchronous motors, emergency generators, overcurrent protection, switchgear combinations, protections against electric shock, current carrying capacity of conductors and cables, voltage drop calculations, lighting systems, compensation for reactive power, and lightning protection systems. The CD-ROM contains applicable CAD programs to aid calculations required in project planning.

MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS

TL589 2003-070019 0-415-30852-6
Advances in dynamics and control.
Title main entry. Ed. by S. Sivasundaram. (Nonlinear systems in aviation, aerospace, aeronautics, and astronautics; 2)
Chapman & Hall / CRC, ©2004 334 p. $99.95
These 20 papers present new results on nonlinear methods for dynamical and control systems being developed for spacecraft, aircraft, and missiles. The researchers examine global spacecraft attitude control using magnetic actuators, adaptive learning control for spacecraft formation flying, missile auto-pilot design using dynamic fuzzy gain scheduling, and model predictive control of nonlinear rotorcraft dynamics. Other topics include bifurcation analysis for the inertial coupling problem of a reentry vehicle, GPS- based attitude determination of gyrostat satellite, identification of stiffness matrices from modal data, and a closed-form solution of 3D ideal proportional navigation.

MINING ENGINEERING

TN689 2004-101212 1-56677-408-X
Corrosion and protection of light metal alloys; proceedings.
Symposium on the Corrosion and Protection of Light Metal Alloys (2003: Orlando, FL) Ed. by R.G. Buchheit et al. (ECS; pv.2003-23)
Electrochemical Society, ©2004 416 p. $82.00
Proceedings from an October 2003 symposium held in Orlando, Florida, highlighting the current focal points of research in corrosion science and engineering worldwide. Thirty-four contributions are organized into sections on pitting, passivity, and novel approaches; localized corrosion, cracking, and corrosion in friction stir welds; corrosion of Mg and Mg alloys and protective coatings; and oxide films, pitting, and modeling and prediction. A sampling of topics: influence of local redox activity at Al alloys on corrosion, direct image processing of corroding surfaces applied to friction stir welding, crystallographic pitting in magnesium single crystals, and nanoscale morphology development in the passive oxide on aluminum and the relationship to pitting.

TN773 2004-298083 0-87339-567-0
Light metals 2004; proceedings. (CD-ROM included)
TMS Annual Meeting; Light Metals Symposium (133d: 2004: Charlotte, North Carolina) Ed. Alton T. Tabereaux.
TMS (Minerals, Metals...Soc.), ©2004 960 p. $225.00
Papers from a March 2004 meeting, describing recent progress in the aluminum industry, are presented here in sections on alumina and bauxite, aluminum can recycling, aluminum reduction technology, carbon technology, cast shop technology, non-ferrous metals processing, and recycling. Mathematical modeling for recycling furnace optimization, factors affecting dross formation, the impact of anode cover control and anode assembly design on reduction cell performance, and metal pad temperatures in aluminum reduction cells are some topics examined. Others are numerical modeling of heat transfer around an aluminum reduction pot shell, plant experience with an experimental titanium diboride cell, and hybrid pitches. There is no subject index.

CHEMICAL TECHNOLOGY

TP150 3-527-30718-4
Handbook of explosion prevention and protection.
Title main entry. Ed. by Martin Hattwig and Henrikus Steen.
Wiley-VCH, ©2004 699 p. $325.00
Hattwig and Steen, both affiliated with Germany's Federal Institute for Research and Testing Materials, offer summaries of the latest German research on measures that prevent or limit industrial explosions. Contributors are affiliated with organizations concerned with occupational safety and materials research and testing in Germany, the US, and several European countries. Some subjects are explosion and ignition processes, properties of reactive gases and vapors, combustible dusts, flammable mists and foams, measures of explosion protection and prevention, and understanding and judging explosion risks. The book will be of interest to operational, planning, design, and safety engineers working in industry, government agencies, and professional associations.

TP156 0-8247-5626-6
Handbook of coatings additives, 2d ed.
Title main entry. Ed. by John J. Florio and Daniel J. Miller.
Marcel Dekker, ©2004 613 p. $175.00
Florio and Miller (both technical service group leaders for King Industries, a manufacturer of specialty chemicals for the paint and coating industry) present 16 papers that together are intended to serve as "a single source for providing detailed text covering a wide range of coating additive technologies." Examples of the material covered include light and heat stabilizers for coatings, corrosion inhibitors, catalysis of amino cross-linked systems, adhesion promoter use in coatings, application of surface additives, rheology additives for solvent and solventless coatings, coalescing agents, and polymeric pigment dispersants for nonaqueous coatings.

TP490 2004-106831 0-7354-0186-1
Advances in cryogenic engineering; v.49; 2v. (CD-ROM included)
Cryogenic Engineering Conference and International Cryogenic Materials Conference (2003: Anchorage, Alaska)Ed. by Joseph Waynert et al. (AIP conference proceedings; v.710)
American Institute of Physics, ©2004
1930 p. $360.00
The papers in this two-volume proceedings were first presented at the joint Cryogenic Engineering and International Cryogenic Materials Conference held in Anchorage, Alaska in September 2003. Material is arranged according to the main topics of the history and future of hydrogen; liquefied natural gas; large scale cryogenic systems and test facilities; expanders, pumps, and compressors; large crysosytem components and issues; instrumentation, controls, and measurements; cryostats; superconducting RF systems; thermal insulation; low and high temperature superconducting magnet systems; helium II phenomena; cryogenics at zero G; Stirling cryocoolers; and novel concepts or devices; among others. New research, design, construction, and testing are described by scientists from 25 countries. Individual topics include the safety system of the Herschel Cryostat, natural convection of subcooled liquid nitrogen in a vertical cavity, NASA space cryocooler programs, performance of pulse tube refrigerators for a wide temperature range, and development of cryogenic systems for the Superconducting Submillimeter- Wave Limb-Emission Sounder (SMILES). Each article is illustrated with b&w figures and tables; many include b&w photos.

TP490 2004-106578 0-7354-0187-X
Advances in cryogenic engineering; proceedings; v.50; 2v. (CD-ROM included)
Cryogenic Engineering Conference and Interna-

tional Cryogenic Materials Conference (2003: Anchorage, Alaska) Ed. by U. Balachandran. (AIP conference proceedings; v.711)
American Institute of Physics, ©2004 928 p. $280.00
Papers from a September 2003 conference are presented here in two volumes, for researchers and engineers in academia and industry who are involved in developing structural and superconducting materials for practical applications. Material reflects recent work in cryogenic magnetic materials, structural materials, non-metallic materials, materials testing, mechanical properties of materials used in cryogenic applications, and low-, high-, and intermediate-temperature superconductors. Some specific topics include unique cryogenic welded structures, low-temperature fatigue properties of advanced cyanate- ester blends after reactor irradiation, and development of pre-preg ceramic insulation for superconducting magnets. A CD-ROM version is included.

TP1183 2003-025345 1-56990-336-0
Handbook of polymeric foams and foam technology, 2d ed.
Title main entry. Ed. by Daniel Klempner and Vahid Sendijarevic.
Hanser/Gardner Pub., ©2004 584 p. $199.95
Klempner (University of Detroit) and Sendijarevic (Troy Polymers, Inc.) collect material on all major classes of polymeric foams and describe their chemistry, properties, preparation methods, and applications. Fundamental aspects of foam are first explained, then specific classes are examined, including polyurethane and isocyanate-based polymeric foams, polystyrene, polyolefin, poly (vinyl chloride), and latex. A final chapter discusses blowing agents for polymer foams. This second edition reflects developments in environmentally acceptable blowing agents, combustibility, and solid waste disposal that have occurred over the past ten years, and describes new classes of foam now in use. The book is of interest to industrial and academic scientists and engineers working in polymeric foams.

MANUFACTURES

TS155 2003-061062 1-57444-359-3
Information technology for manufacturing; reducing costs and expanding capabilities.
Title main entry. Ed. by Kevin Ake et al.
St. Lucie Press, ©2004 309 p. $59.95
This text takes a comprehensive look at five fundamental areas where IT influences the manufacturing process<—>manufacturing execution, product life cycle management, use and analysis of performance data, planning and scheduling, and maintenance management. Numerous examples demonstrate the use of IT systems in a wide range of vertical industries. Particular attention is given to each state of a project life cycle. Successful strategies are detailed and common mistakes identified. The authors are consultants.

TS156 90-5966-018-8
Tools and methods of competitive engineering; proceedings; 2v. (CD-ROM included)
Symposium on Tools and Methods of Competitive Engineering (5th: 2004: Lausanne, Switzerland) Ed. by Imre Hováth and Paul Xirouchakis.
Millpress Science Publishers, ©2004 570 p. $173.00
The papers of this proceedings were first presented at the 5th International Symposium on Tools and Methods of Competitive Engineering, held in April 2004 in Lausanne, Switzerland. Of the 220 papers originally presented, 92 are presented here at full length and 50 in 2-page summaries. The CD-ROM contains all 142 papers in their full length. The symposium's main theme was life-cycle engineering, with topics included on product longevity, reliability, use, maintenance, sustainability, and recycling. A small sampling of the topics of the full-length papers include active learning in a virtual business environment, technology management in product design, assembly and disassembly of micro-mechatronic products, aesthetic design, morphological modeling techniques, support of concept synthesis using genetic algorithms, and identification of users and their relations to the product. Competitive manufacturing technologies and virtual enterprise technologies are the main subjects of v.2. The engineers who contributed are affiliated with industries and universities worldwide. Author index only. There is no US distributor.

TS170 2003-054632 1-56670-644-0
Integrated life-cycle and risk assessment for industrial processes.
Sonnemann, Guido et al. (Advanced methods in resource and waste management series; 2)
Lewis Publishers, ©2004 362 p. $149.95
For a readership with some knowledge in environmental engineering (probably a graduate-level audience, but also including those in industry and policymaking), this study aims to go beyond

the simplistic analysis that control of emission sources is the key to mitigating the impact of industrial processes on the environment. The three authors (one is with UNEP; two are chemists affiliated with the Rovira i Virgili U., Tarragona, Spain) show how to formulate a more nuanced and effective analysis by integrating the tools of life-cycle assessment with those of risk assessment. They explain methods and describe practical applications for evaluating risks and trade-offs associated with products and services over their entire life cycle.

TS177 2003-019548 1-890871-50-8
Facility design and engineering, 3d ed.
Hanna, Steven R. and Stephan Konz.
Holcomb Hathaway, Pub., ©2004 418 p.
$68.00 (pa)
Hanna (an engineer with his own company) and Konz (Kansas State University) cover the design of all aspects of a facility, including the building itself, material handling, services and environment, and layout and operation of the facility, in this text for undergraduates in courses on industrial engineering or material handling. Self-contained chapters allow instructors flexibility, and chapter problems and projects encourage students to apply their learning to real-life activities. This third edition offers extensive updates of all chapters, a new chapter on lean manufacturing and supply chain management, a glossary, and computer programs available on a Web site.

TS517 2003-069358 0-8194-5313-7
Optical coating technology.
Baumeister, Philip W. (SPIE Press monograph; PM137)
SPIE, ©2004 — p. $95.00
This book is intended to instruct technologists in the design and fabrication of thin film coatings that function by means of optical interference. Organized around key subjects associated with functions of optical thin film performance, the book provides a resource for those designing, producing, and using optical thin film technology. Early chapters overview application of optical thin films and fundamentals of thin film analysis. Later chapters survey thin film deposition methods, processes, and materials, describe design approaches, and provide information on designing thin film performance using absorbing multilayers. Baumeister taught courses on optical thin film technology at the University of California-Los Angeles.

TS695 2003-18016 0-8155-1483-2
Thin film materials technology; sputtering of compound materials.
Wasa, Kiyotaka et al.
William Andrew Pub., ©2004 518 p. 160.00
Wasa (Yokohama City U., Japan) notes that the sputtering phenomenon was first observed some 150 years ago. He and colleagues with the Matsushita Electrical Industrial Co., Kyoto, describe progress in sputtering technology in recent years and applications that are relevant to electronics (notably in the production of integrated circuits and magneto-optical recording media), and other common manufacturing processes (e.g. coating machine tools and reflective windows). Intended as a bridge between tutorial textbooks for graduate students and research guides, the volume includes experimental and production-level engineering data.

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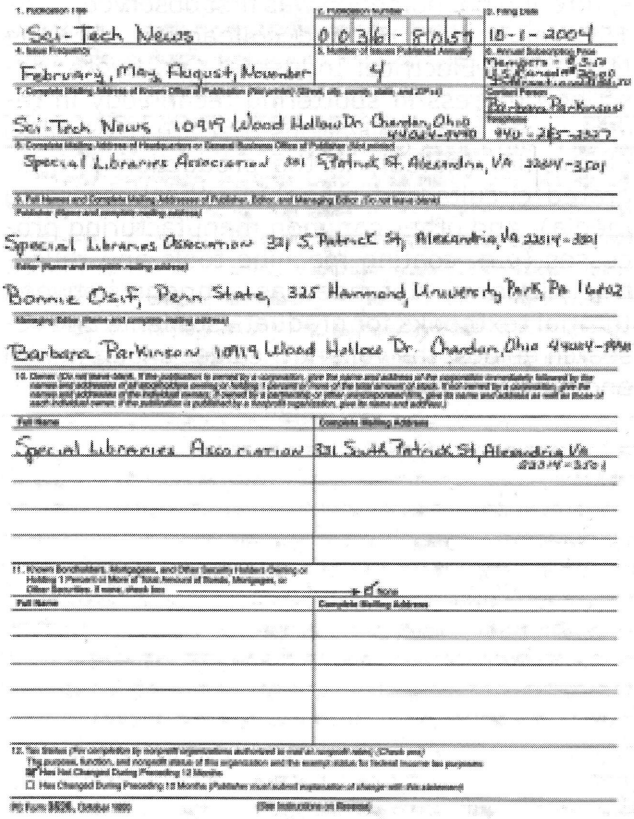
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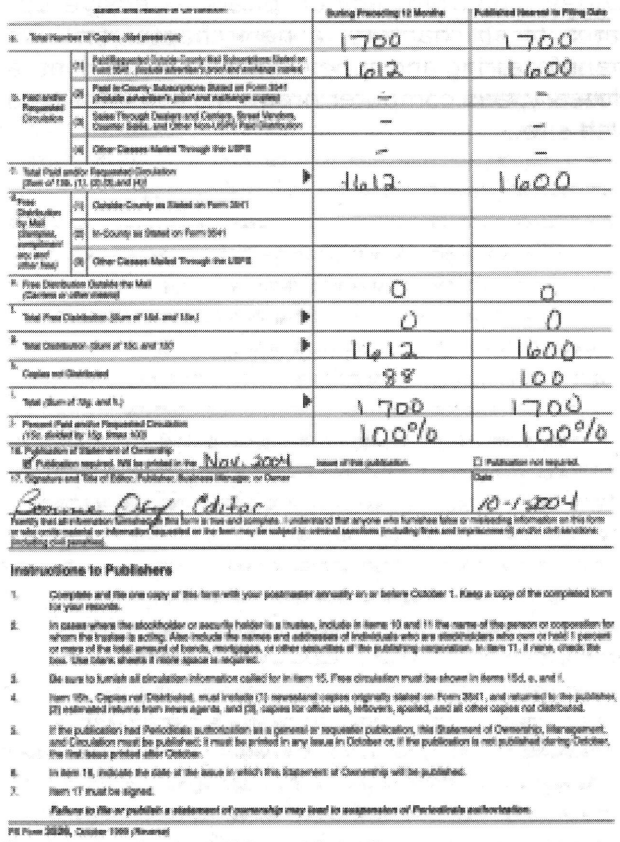
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